64±5.2). WC-HT was defined when clinical blood pressure >140/90 mmHg and average daytime ambulatory blood pressure (30 pts) or home blood pressure (30 pts) ≤120/80 mmHg. Target-organ damage was assessed using the left ventricular mass index (LVMI) measured by echocardiography; the thickness of the intima-media complex (IMT) measured at the common carotid 1 centimetre from the flow-divider; diameter of abdominal aorta determined by echography; ventricular arrhythmias (couplets, ventricular tachycardia and R-on-T phenomena) by dynamic ECG; presence of hypertensive retinopathy. Patients smokers and/or with diabetes mellitus, hyperlipidemia, history of coronary disease, cerebrovascular disease, peripheral arterial disease, were excluded from the study. All patients were examined at the beginning of the study and after 24 months. Results: data refers to 55 subjects. 5 subjects, all by home blood pressure, developed arterial hypertension. The left ventricular mass was tested in 40 patients who had a good quality echocardiogram. The diameter of the abdominal aorta was measured in 58 subjects. In the two-year follow-up there were no non cardiovascular and/or cerebrovascular events.

<table>
<thead>
<tr>
<th>Basal</th>
<th>After 24 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Blood Pressure</td>
<td>160/97 mmHg</td>
</tr>
<tr>
<td>Average Daytime/Home Blood Pressure</td>
<td>118/79 mmHg</td>
</tr>
<tr>
<td>LVMI</td>
<td>90±15 gr/mq</td>
</tr>
<tr>
<td>Abdominal Aorta</td>
<td>21 ± 2 mm</td>
</tr>
<tr>
<td>IMT</td>
<td>0.78 ± 0.04 mm</td>
</tr>
<tr>
<td>Subjects with Complex Arrhythmias</td>
<td>2</td>
</tr>
<tr>
<td>Subjects with Retinopathy</td>
<td>0</td>
</tr>
</tbody>
</table>

Conclusions: 1) white-coat hypertension does not constitute a risk factor in the development of target-organ disease and/or cerebrovascular and cardiovascular events. 2) However, it is necessary to keep checking white-coat hypertension subjects because they could develop arterial hypertension. 3) ABPM is the more reliable method compared to home blood pressure.

Key Words: White coat hypertension; target organ damage

**B005**

**ASSOCIATION BETWEEN LOW WALL SHEAR STRESS AND PLASMA VCAM-1 IN SUBJECTS WITH RISK FACTORS FOR ATHEROSCLEROSIS**

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In vitro studies demonstrated adhesion molecules could connect low shear stress and atherosclerosis. In the present study, we investigated the relationship between circulating adhesion molecules and carotid atherosclerosis and wall shear stress in essential hypertensive patients. Seventy subjects with risk factors for atherosclerosis, free from the medication for at least a week, were enrolled in the study. Intimal-media thickness (IMT) was evaluated by high-resolution ultrasonography. Shear rate was obtained from Poi-seuillean’s parabolic model: shear rate=4×blood velocity / carotid internal diameter. Shear stress was obtained by shear stress × blood viscosity. Plasma levels of ICAM-1 and VCAM-1 were measured by ELISA. There were no relationship between IMT and plasma levels of ICAM-1 and VCAM-1. VCAM-1 showed a significant negative correlation with peak shear stress in common carotid artery (r=-0.39, p<0.001), while there was no relationship between ICAM-1 and wall shear stress. These findings indicate that low shear stress may promote atherosclerosis through in part activation of soluble form of adhesion molecules.

Key Words: Atherosclerosis; carotid artery; shear stress; ICAM-1; VCAM-1

**B006**

**ORTHOSTATIC HYPERTENSION IS ASSOCIATED WITH CAROTID ATHEROSCLEROSIS: SEKIZEN STUDY, JAPAN**

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Orthostatic dysregulation of blood pressure has been shown to be associated with increased risk for future cardiovascular event. To evaluate the relationship between orthostatic hypertension and carotid atherosclerosis, blood pressure was measured 10 minutes rest in supine position and one and three minutes after standing. Intimal-media thickness (IMT) was measured in 200 community dwelling healthy subjects free from medication in Sekizen Japan. After 10 minutes rest in the supine position, brachial blood pressure was measured twice to obtain the basal blood pressure. Then blood pressure was measured at 1 and 3 minutes after standing up. Orthostatic hypertension and hypotension were defined when systolic blood pressure (SBP) was increased and decreased more than 20 mmHg after standing. Orthostatic hypertensive patients (n=28) had significantly larger IMT than other subjects (8.5±1.1 vs 7.9±1.3 mm, p=0.011). Stepwise regression analysis was performed for IMT with age, supine SBP, BMI, and % change in SBP after standing as parameters. It revealed that % change in SBP after standing was an independent determinant of IMT. Those findings suggest that orthostatic hypertension is independently associated with carotid atherosclerosis.

Key Words: Elderly; treatment; cerebrovascular event; cardiovascular event; cancer; aging

**B007**

**INTERCHANGEABILITY OF CAROTID AND FEMORAL INTIMA-MEDIA THICKNESS IN RISK STRATIFICATION?**

E. Rietzschel, M. De Buyzere, T. De Backer, D. Duprez, and D.L. Clement. Department of Cardiology and Angiography, University Hospital Ghent, Ghent, Belgium

Background. Carotid intima-media thickness is a well documented marker for future cardiovascular, cerebrovascular and peripheral vascular events. It is used as an intermediate parameter not only for the local but also the global arterial status. In view of the concept of vascular heterogeneity, we aimed to investigate the relation between carotid artery intima-media thickness and femoral artery intima-media
thickness in a population of normotensive healthy volunteers.

**Methods.** A population of 88 healthy normotensive volunteers with wide age distribution between 18 and 65 years was studied (mean age 41.1 ± 13.4 years, 47% men, 53% women). Carotid and femoral IMT were measured using a 10 MHz vascular echography probe (Vingmed System Five). Three measurements of carotid and femoral artery IMT were performed 1 to 2 centimeters proximal of the right carotid and right femoral artery bifurcations respectively, and the results were averaged.

**Results.** Mean carotid IMT was 0.53 ± 0.13 mm. Mean femoral IMT was 0.63 ± 0.34 mm. Carotid and femoral IMT were significantly correlated (r = 0.380; p < 0.001). However femoral IMT values showed a significantly wider scatter with increasing age: Levene’s test for >45y, *p<0.05 in table of quartiles of age.

<table>
<thead>
<tr>
<th>Mean age (y)</th>
<th>Carotid IMT (mm)</th>
<th>Femoral IMT (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.3(n=22)</td>
<td>0.44 ± 0.08</td>
<td>0.42 ± 0.10</td>
</tr>
<tr>
<td>36.3(n=22)</td>
<td>0.50 ± 0.10</td>
<td>0.54 ± 0.16</td>
</tr>
<tr>
<td>49.5(n=23)</td>
<td>0.56 ± 0.11</td>
<td>0.76 ± 0.38*</td>
</tr>
<tr>
<td>56.4(n=21)</td>
<td>0.64 ± 0.13</td>
<td>0.80 ± 0.44*</td>
</tr>
</tbody>
</table>

**Conclusion.** These results show differential effects of aging on elastic and muscular large arteries, fitting within the concept of vascular heterogeneity. Although carotid and femoral intima-media thicknesses correlate closely, the wide scatter of values of femoral IMT in all but the youngest age groups precludes this parameter from being used in risk stratification.

Key Words: Intima-media thickness; risk stratification; vascular heterogeneity

**B008**

**LOCAL ARTERIAL DISTENSIBILITY AND THE GLOBAL VASCULAR AUGMENTATION INDEX**

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**Background.** Several methodologically independent parameters of local and global vascular compliance have been proposed to describe vascular elastic behaviour, but data comparing different methodologies are scarce. The augmentation index (AI) results from summed, accelerated wave reflections arising from peripheral arterial sites where impedance to flow and decreased ability to dissipate energy interact. We aimed to investigate the relation between AI as a measure of global arterial compliance and local carotid artery distensibility.

**Methods.** A population of 61 healthy normotensive volunteers (mean age 40.8 ± 13.7 years, 44% men, 56% women) was studied. Carotid artery diameter and distension were echographically determined using a 10 MHz vascular echography probe (Vingmed System Five). Measurements were performed in M-mode 1, 1½ and 2 cm proximal to the right carotid artery bifurcation. Distension is defined as the difference between end-diastolic and peak systolic arterial diameters; distensibility as distension divided by the end-diastolic diameter. Global arterial compliance was derived from tonometrically obtained arterial pulse wave contours using a high-fidelity tonometer (Millar Instruments) and the augmentation index (AI) was calculated (Sphygmocor, PWV).

**Results.** Global arterial compliance expressed as the augmentation index was 121.0 ± 25.1%. Carotid artery distension was 0.67 ± 0.24 mm; Diameter was 5.74 ± 0.76 mm and distensibility was 11.93 ± 4.45%. Augmentation index was significantly correlated to both carotid artery distension and distensibility (r = −0.389; p = 0.002 and r = −0.405; p = 0.001 respectively).

**Conclusion.** Our data suggest that loss of (local) arterial distensibility might contribute to increasing global vascular compliance assessed by the augmentation index.

Key Words: Vascular compliance; augmentation index; distensibility

**B009**

**HUMERAL ARTERY REMODELING AND NITRIC OXIDE RELEASE IN EARLY STAGES OF FAMILIAL HYPERCHOLESTEROLEMIA**


Hypercholesterolemia is reported to be associated with an increased oxidative inactivation of nitric oxide (NO) and a reduced endothelium dependent vasodilation. However, experimental studies suggest an increased release of NO in early stages of hypercholesterolemia possibly related to endothelial activation and enhanced activity of inducible NO synthetase. Aim of the study was to assess systemic NO generation and endothelial dependent and independent vasodilation in young subjects with early diagnosed familial hypercholesterolemia (FHC) and without cardiovascular disease.

**Patients and Methods:** brachial artery diameter was measured by high-resolution ultrasound at rest, during reactive hyperemia following 5 min forearm ischemia (endothelium-dependent vasodilation) and after sublingual glyceryl trinitrate (GTN 400 µg; endothelium-independent dilatation) in 12 subjects (age 28±2 years, mean±DS) with familial hypercholesterolemia (271 mg/dl ± 21.9) and 12 healthy controls (26±3 years, mean ± DS). Plasma concentration of nitrates and nitrates (Nox markers of No release) were measured by a colorimetric assay based on Griess reaction. Plasma Nox were significantly higher in FHC than in controls (87.11±10.07 vs 35.28±25.8 mmol; p<0.01). At humeral artery level at baseline flow velocity was comparable between groups while cross sectional vessel area tended to be lower in FHC (9,6±3,8 vs 22,56±3,0 mm² p=NS) resulting in a significantly lower volumetric flow (FHC 121,23±86,6 vs N 236,57±15,5 ml/min, p<0.05). As compared to controls, after reactive hyperemia in FHC volumetric flow and humoral artery area were slightly lower (1526,17±30.17 vs...