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### **P1.13: CENTRAL BLOOD PRESSURE (BP) IS AN INDEPENDENT PREDICTOR OF WORSE OUTCOME IN YOUNG TO MIDDLE AGE SUBJECTS SCREENED FOR STAGE I HYPERTENSION**

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**Methods:** Baseline data of the B-PROOF study are used to determine associations between homocysteine level and outcomes of vascular function. A subgroup was included (n=410, 58% male, age  $72.6 \pm 5.5$  yrs, mean homocysteine level  $15.2 \pm 3.1$   $\mu\text{mol/l}$ ). We assessed carotid intima media thickness (cIMT), carotid distensibility, using ultrasonography, and pulse wave velocity (PWV) and augmentation index (AIx), measured with applanation tonometry. Furthermore, office blood pressure measurements (n=410) and 24-hour blood ambulatory pressure recordings (n=70) were performed. Associations were tested using linear regression analysis and adjusted for age, gender, mean arterial pressure and heart rate.

#### Results:

The baseline analysis of the B-PROOF trial showed that log homocysteine was associated with PWV [ $\beta$  0.010 (95%CI 0.006;0.014)] and with carotid IMT [ $\beta$  0.0002 (95%CI 0.0001;0.0004)]. However, the association with IMT did not remain significant after adjustment for confounders [ $\beta$  0.001 (95%CI -0.001;0.003)], but this finding remained for PWV [ $\beta$  0.006 (95%CI 0.002;0.011)]. No significant association with homocysteine was found for AIx, distensibility or blood pressure levels.

#### Conclusions:

Homocysteine is possibly associated with arterial stiffness in elderly, measured with PWV. However, a subsequent question is whether lowering of homocysteine levels, indeed improves vascular function. Currently, this trial is still in progress.

#### P1.13

##### CENTRAL BLOOD PRESSURE (BP) IS AN INDEPENDENT PREDICTOR OF WORSE OUTCOME IN YOUNG TO MIDDLE AGE SUBJECTS SCREENED FOR STAGE I HYPERTENSION

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**Objective:** The aim was to evaluate the association of central BP with target organ damage (TOD) and the risk of future hypertension in a cohort of subjects from the HARVEST study. **Methods:** We studied 305 stage I hypertensive subjects (mean age,  $38 \pm 10$  years). Central BP was obtained from radial artery tonometry. TOD included left ventricular hypertrophy and/or microalbuminuria.

**Results:** At baseline peripheral BP was  $138 \pm 12 / 86 \pm 7$  mmHg, average 24-hour BP was  $130 \pm 11 / 80 \pm 8$  mmHg, central BP was  $125 \pm 13 / 86 \pm 8$  mmHg. In a multiple logistic regression including ambulatory BP, central mean BP was associated with TOD ( $p=0.01$ ). In the subjects divided according to whether their central mean BP was above or below the median ( $98.7$  mmHg), during 9-year follow-up, sustained hypertension was developed by 38.8% of subjects with low central mean BP and by 64.5% of subjects with high central mean BP ( $p<0.001$ ). Central mean BP was used because it was a better predictor of future hypertension (OR 2.5) compared to central SBP or DBP. In a multiple logistic regression central mean BP and not central pulse pressure, was an independent predictor of future hypertension ( $p=0.004$ ). Also ambulatory systolic ( $p=0.002$ ) and diastolic ( $p=0.02$ ) BPs were independent predictors. When all pressures were included in the same model, central mean BP remained a predictor of future hypertension ( $p=0.004$ ) on top of ambulatory BP.

**Conclusion:** In young-to-middle-age stage I hypertensive subjects central mean BP, but not pulse pressure, was associated with TOD and central BP was a significant predictor of adverse outcome on top of 24-hour BP.

#### P1.14

##### FORMATION OF NEW ATHEROSCLEROTIC PLAQUES IN WELL CONTROLLED RHEUMATOID ARTHRITIS DEPENDS ON CLASSICAL CARDIOVASCULAR RISK FACTORS: A PROSPECTIVE LONGITUDINAL STUDY

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**Background:** Rheumatoid arthritis (RA) is an independent risk factor for cardiovascular disease (CVD); RA patients demonstrate advanced pre-clinical carotid atherosclerosis compared to controls.

**Objectives:** To assess: the rate of progression of subclinical atherosclerotic plaque formation in RA patients and the factors leading to progression; whether the rate of progression in these patients is faster than in non-RA subjects carefully-matched for traditional CV risk factors. **Methods:** Carotid plaques were assessed by ultrasonography at baseline and follow-up end, separated by an average of  $3.6 \pm 0.2$  years, in 64 non-diabetic RA patients (53% aged  $59.2 \pm 12$  years) without concomitant CVD (RA disease duration  $7.8 \pm 6.2$  years). 'Healthy' controls matched 1:1 both at baseline and follow-up end for all traditional CVD risk factors with 35 RA patients were also studied.

**Results:** New plaques formed in 30% of patients who were significantly older, heavier tobacco user and had higher average systolic blood pressure compared to the rest RA population. Lipids, obesity, inflammatory markers and other RA related parameters were comparable between the 2 subgroups. In multivariate analysis: age and smoking predicted new plaque formation of all classical CVD factors (model 1); longer duration of corticosteroid use (low-dose) and shorter duration of biologic agent use (of all RA related parameters/drugs -model 2). In a final model: age, smoking and corticosteroid use predicted new plaque formation. Being in clinical remission on average during 62% of follow-up time, RA patients displayed similar rate of progression atherosclerotic plaque formation to the matched controls.

**Conclusions:** Formation of new atherosclerotic plaques in patients with well-controlled RA depends mainly on traditional cardiovascular risk factors and corticosteroid use.

#### P1.15

##### CENTRAL BLOOD PRESSURE (CBP) MEASUREMENTS IN THE PORTUGUESE POPULATION: THE GUIMARÃES STUDY (STUDY TO DETERMINE THE CARDIOVASCULAR RISK OF THE POPULATION OF GUIMARÃES/VIZELA: PREVALENCE OF ARTERIAL STIFFNESS AND EARLY VASCULAR AGING SYNDROME)

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We observed 1104 subjects of the Portuguese population coming from two northern adjacent cities: Guimarães and Vizela. They were randomly selected to be included in a cohort representative of age and gender distribution. We evaluated their blood pressure (BP) (mean three measurements), height, weight, lipidic profile, fasting glucose, HbA1c, serum creatinine, microalbuminuria (occasional sample) and CBP measurements (Sphygmocor®).

These 1104 subjects (56,4% females), had a mean global age of 47,6 years ( $18 - 94$ ); 42% had hypertension, 10,7% had Diabetes, 80% had lipidic profile abnormalities, 3,1% had GFR  $< 60\text{ml/min}$  and 16,1% had microalbuminuria. The mean brachial systolic BP was  $131,3$  mmHg ( $84$  to  $243$ ) and the mean brachial diastolic BP was  $76,7$  mmHg ( $44$  to  $128$ ); The average BMI was  $26,8$  kg/m<sup>2</sup> ( $16,8$  to  $46,2$ ).

Mean global CBP (cSBP/cDBP) values recorded were  $119/77$  mmHg, with a mean Central Pulse Pressure (cPP) of  $42$  mmHg. Mean CBP values (cSBP/cDBP) recorded by age classes were:  $18$  to  $30$  years –  $101/71$  mmHg ( $81/50$  to  $136/100$ ), cPP –  $30$  mmHg;  $31$  to  $40$  years –  $109/76$  mmHg ( $80/57$  to  $162/105$ ), cPP –  $32$  mmHg;  $41$  to  $50$  years –  $121/82$  mmHg ( $88/54$  to  $224/131$ ), cPP –  $39$  mmHg;  $51$  to  $60$  years –  $125/83$  mmHg ( $90/58$  to  $163/113$ ), cPP –  $43$  mmHg;  $61$  to  $70$  years –  $134/79$  mmHg ( $96/55$  to  $198/112$ ), cPP –  $55$  mmHg;  $71$  to  $80$  years –  $137/78$  mmHg ( $91/48$  to  $202/104$ ), cPP –  $59$  mmHg;  $81$  to  $90$  years –  $141/76$  mmHg ( $93/57$  to  $194/100$ ), cPP –  $65$  mmHg. These are, to our knowledge, the first CBP measurements performed on a population based cohort in Portugal.

#### P2 – Endothelium and small arteries 1

##### P2.01

##### RELATIONSHIP BETWEEN MEDIA TO LUMEN RATIO OF SUBCUTANEOUS SMALL ARTERIES AND WALL TO LUMEN RATIO OF RETINAL ARTERIOLES EVALUATED NON INVASIVELY BY SCANNING LASER DOPPLER FLOWMETRY

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