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## P1.16

## CLINICOPATHOLOGICAL FACTORS ASSOCIATED TO CENTRAL AORTIC PRESSURE PARAMETERS IN PATIENTS WITH HYPERTENSION

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**Aim:** To investigate association of central aortic pressure (CAP) parameters – augmentation index (Alx), augmentation index, normalized for heart rate 75/min (Alx75), augmentation pressure (AP), central systolic (SPa) and pulse pressure (PPa) with some clinical, laboratory and hemodynamic characteristics of patients with hypertension.

**Material-Methods:** 100 hypertensive patients at the age of 22–73 years (mean age 54±10,8) were examined, 43% men. Investigation included electrocardiography, echocardiography, determination of serum lipids, creatinine, creatinine clearance (CrCl) calculation, CAP registration using SphygmoCor device.

**Results:** Alx, Alx75, AP, PPa in women were higher than in men (30% vs. 20%; 28% vs. 17%; 14,5 vs. 8,7mmHg ( $p<0,001$ ); 46,7 vs. 40,6mmHg ( $p<0,05$ ); respectively), increased with older age ( $r=0,28$ ;  $r=0,23$ ;  $r=0,36$ ;  $r=0,33$  respectively;  $p<0,05$ ), negatively correlated with CrCl ( $r=-0,55$ ;  $r=-0,56$ ;  $r=-0,53$ ;  $r=-0,34$  respectively;  $p<0,05$ ). Alx, Alx75, AP negatively correlated with height and waist circumference ( $r=-0,48$ ;  $r=-0,61$ ;  $r=-0,41$  and  $r=-0,32$ ;  $r=-0,36$ ;  $r=-0,21$  respectively;  $p<0,05$ ), positively - with LDL cholesterol ( $r=0,22$ ;  $r=0,22$ ;  $r=0,24$  respectively;  $p<0,05$ ). Alx, Alx75, AP, SPa correlated positively with late ventricular filling velocity ( $r=0,23$ ;  $r=0,29$ ;  $r=0,27$  respectively;  $p<0,05$ ). SPa correlated positively with myocardial mass ( $r=0,24$ ;  $p<0,05$ ), inter-ventricular septum and posterior wall thickness ( $r=0,36$  and  $r=0,34$  respectively;  $p<0,05$ ), negatively – with ratio between early and late ventricular filling velocity ( $r=-0,28$ ;  $p<0,05$ ). Alx and Alx75 negatively correlated with diameter of left atrium and end-diastolic diameter of left ventricle (LV) ( $r=-0,23$ ;  $r=-0,28$  and  $r=-0,2$ ;  $r=-0,29$  respectively;  $p<0,05$ ).

**Conclusions:** As a result, parameters of CAP were associated with gender, age, anthropometric characteristics, renal disease, dyslipoproteinemia, LV hypertrophy and diastolic dysfunction.

## P1.17

## ARTERIAL STIFFNESS PARAMETERS AND AMBULATORY BLOOD PRESSURE MONITORING IN PATIENTS WITH HYPERTENSION

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**Aim:** To investigate correlation between ambulatory blood pressure monitoring (ABPM) parameters and central aortic pressure (CAP) parameters (which are the main indicators of arterial stiffness), such as: augmentation index (Alx); augmentation index, normalized for heart rate 75/min (Alx75); augmentation pressure (AP); central systolic (SPa) and pulse pressure (PPa) in patients with hypertension.

**Material-Methods:** 100 hypertensive patients at the age of 22–73 years (mean age 54±10,8) were examined, 57% women. Investigation included electrocardiography, echocardiography, ABPM, determination of serum lipids and creatinine. CAP was measured with applanation tonometry of radial artery using SphygmoCor device.

**Results:** Mean levels of AP, SPa, PPa positively correlated with 24h systolic BP (SBP) ( $r=0,23$ ;  $r=0,63$ ;  $r=0,5$  respectively;  $p<0,05$ ), 24h PP ( $r=0,35$ ;  $r=0,52$ ;  $r=0,66$  respectively;  $p<0,05$ ), daytime and nighttime SBP ( $r=0,21$ ;  $r=0,67$ ;  $r=0,5$  and  $r=0,19$ ;  $r=0,5$ ;  $r=0,44$  respectively;  $p<0,05$ ), high BP load (Hldx) and area under curve (Hlpt) of SBP ( $r=0,19$ ;  $r=0,6$ ;  $r=0,47$  and  $r=0,23$ ;  $r=0,61$ ;  $r=0,48$  respectively;  $p<0,05$ ). Alx, AP, PPa negatively correlated with heart rate (HR) ( $r=-0,22$ ,  $p<0,05$ ). Alx, Alx75, AP, SPa correlated positively with the diurnal variability (SD) of SBP ( $r=0,19$ ;  $r=0,24$ ;  $r=0,25$ ;  $r=0,31$  respectively;  $p<0,05$ ). SPa had positive correlation with 24h diastolic BP (DBP) ( $r=0,44$ ;  $p<0,05$ ), daytime and nighttime DBP ( $r=0,48$  and  $r=0,37$  respectively;  $p<0,05$ ), Hldx and Hlpt of DBP ( $r=0,42$  and  $r=0,45$  respectively;  $p<0,05$ ), SD of DBP ( $r=0,24$ ;  $p<0,05$ ).

**Conclusions:** According to our study results, parameters of CAP positively correlates with all parameters of ABPM, except HR. Arterial wall stiffness increases in response to lower HR and/or higher BP during 24h.

## P1.18

## STATE OF TARGET-ORGANS IN GEORGIAN OBESE AND OVERWEIGHT HYPERTENSIVE SUBJECTS

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Obesity and hypertension (AH) are the most important related risk-factors of cardiovascular disease (CVD), so we examined differences in target-organ injury between obese and overweight hypertensive individuals. We studied 102 patients with mild to moderate AH (67males/35females, mean age 51,3±2,4years, BMI 30,9±1,9kg/m<sup>2</sup>, duration of AH 4,6±1,4years). Examination included: ultrasound evaluation of left ventricular mass index (LVMMI), carotid artery IMT, of endothelial function of brachial artery; 24-hour BP monitoring. 49 overweight patients (25<BMI< 29,9kg/m<sup>2</sup>) were assigned to group 1 and 53 obese patients (30kg/m<sup>2</sup>) to gr 2. The groups were comparable by the age, duration of AH, daily mean BP values. Mean values of LVMMI (gr1:140,4±8,7gr/m; gr2:146,8±6,9gr/m) and IMT (gr1:1,02±0,03mm;gr2: 1,08±0,04mm) were certainly increased in obese patients compared with overweight ones ( $p<0,001$ ). Prevalence of carotid atherosclerosis was higher in gr2 (79%vs67%). Endothelium – dependent vasodilatation (EDVD) (gr1:7,6±0,5;gr2:7,01±0,3%) was significantly reduced in obese patients ( $p<0,01$ ), but occurrence of endothelial dysfunction was almost equal (gr1:59;gr2:60%). Occurrence of left ventricular hypertrophy (LVH) and especially of eccentric type was higher in gr2 (86vs81%; 38vs22 %, respectively), of concentric hypertrophy in gr1 (59vs48%). Normal geometry occurred only in gr1(4%). Number of *Non-Dippers* was higher in gr2(72vs67 %), of *Dippers* in gr1(30vs14 %). BMI positively correlated with IMT ( $r = 0,25$ ,  $p<0,02$ ) and LVMMI ( $r = 0,41$ ,  $p<0,01$ ) and negatively with EDVD ( $r = -0,4$ ,  $p<0,05$ ). Thus, in Georgian obese hypertensive subjects we detected more pronounced and frequent target-organ injury (mostly eccentric LVH, carotid artery affection - IMC thickening, endothelial dysfunction) and disorders of BP circadian profile comparing with overweight ones.

## P1.19

## FAMILY HISTORY OF CARDIOVASCULAR EVENTS, ARTERIAL STIFFNESS AND CENTRAL BLOOD PRESSURE: 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 2123 subjects from two adjacent cities in the north of Portugal (Guimarães/Vizela) randomly selected from the population to include a cohort representative of age and gender distribution. We evaluated their clinical and metabolic characteristics. Relevant family history (FH) of cardiovascular events (CVE), Pulse Wave Velocity (PWV) and Central Blood Pressure measurements were collected. We considered positive FH (PFH) for CVE whenever one subject had two first degree family members with positive CVE history or one first degree relative with a premature CVE. Our goal is to understand if a PFH of CVE influences arterial stiffness (AS) / central hemodynamic parameters, increasing CV risk.

We found 227 subjects with strong PFH for CVE (61.2% females; mean global age of 65.5 years); they presented the following global mean values: PWV – 9.0 m/sec; Central SBP (cSBP) 134.0 mmHg; Central DBP (cDBP) – 79.6 mmHg; Central Pulse Pressure (cPP) – 54.5 mmHg; Augmentation Index (AI) – 34.1. When comparing these mean values with the ones of the remaining study population, we could find significant difference concerning PWV/ cSBP/ cDBP/ cPP / AI. When analysing the differences (concerning these variables) between the general population and the PFH population after dividing them by age classes, we could see that