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P55: TARGET ORGAN DAMAGE AND BLOOD PRESSURE VARIABILITY IN HYPERTENSION

Dimitrios Terentes-Printzios, Charalambos Vlachopoulos, Athanasios Angelis, Nikolaos Loakeimidis, Panagiotis Xaplanteris, Christos Georgakopoulos, Evangelia Sigala, Losif Koutagiar, Angeliki Rigatou, Dimitrios Tousoulis

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²Cardiology Department, Klinikum Wels-Grieskirchen, Wels, Austria

³Practice for Internal Medicine, Vienna, Austria

Objectives: Sex differences for parameters of arterial wave reflection and arterial stiffness were reported from single office measurements, but circadian patterns were not extensively investigated up to now. The aim of this study was to determine sex differences between day and night values of ambulatory central blood pressure as well as ambulatory pulse wave parameters related to arterial wave reflection.

Methods: A Mobil-O-Graph (IEM, Stolberg) with inbuilt PWA technology was used in patients without antihypertensive treatment visiting a doctor's practice for internal medicine. Aortic blood pressure was obtained using a generalized transfer function incorporating mean blood pressure for pressure calibration. Daytime was defined between 9 am and 8 pm and nighttime between 10 pm and 6 am.

Results: In the study 192 men (mean age 50.5 years) and 155 women (57.3 years) were included. Men had higher central systolic (cSBP) and diastolic blood pressures compared to women. In contrast, augmentation index (Alx) and reflection magnitude (RM) were significantly lower in men compared to women both during day and night. For both sexes, Alx and RM were higher during the night, see table for full details (all day-night differences were statistically significant).

Table	Mean values of both sexes during daytime and nighttime.			
	Day		Night	
	Men	Women	Men	Women
bSBP (mmHg)	134.5*	130.2	121.5	118.6
bDBP (mmHg)	86.7*	81.5	74.8*	70.3
HR (bpm)	75.2	77.1	64.5*	66.9
cSBP (mmHg)	136.7*	131.5	131.7*	125.4
Alx (%)	19.8*	28.2	25.1*	35.1
RM	60.5*	63.4	68.7*	71.4

* Indicates a significant difference between men and women ($p < 0.05$); bSBP – brachial systolic blood pressure, bDBP – brachial diastolic blood pressure, HR – heart rate, cSBP – central systolic blood pressure, Alx – augmentation index, RM – reflection magnitude.

Conclusions: A typical blood pressure dipping during nighttime was found for both sexes. However, an increase in wave reflection parameters was found during nighttime leading to highest values for women during the night. Thus, single measurements have to be interpreted with caution and an ambulatory blood pressure measurement including pulse wave analysis might be beneficial.

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Peripheral Vessels Unit, First Department of Cardiology, Hippokraton Hospital, Medical School, National and Kapodistrian University of Athens, Athens, Greece

Purpose/Background/Objectives: Hypertension is associated with several markers of subclinical target organ damage (TOD). Short-term blood pressure variability (SBPV) is a prognostic factor for cardiovascular events in hypertensives. We hypothesised that there is a relationship between SBPV and TOD in never-treated hypertensives.

Methods: We enrolled 943 consecutive essential hypertensives (mean age 53 ± 12 years, 497 males). Markers of subclinical TOD [left ventricular mass index (LVMI), pulse wave velocity (PWV), total arterial compliance (TAC), aortic augmentation index (Alx@75), ankle-brachial index (ABI) and estimated glomerular filtration rate (eGFR)] and 24-h ambulatory blood pressure were evaluated in all patients. SBPV was calculated as follows: 1) SD of 24-hour, daytime, or nighttime SBP and 2) weighted SD of 24-hour SBP.

Results: In multivariable regression analysis, all four variables of SBPV exhibited significant association with LVMI ($p = 0.014$, $p = 0.002$, $p = 0.002$ and $p < 0.001$, respectively), PWV ($p = 0.021$, $p = 0.015$, $p = 0.055$ and $p = 0.006$, respectively) and TAC ($p = 0.048$, $p = 0.020$, $p = 0.036$ and

$p = 0.006$, respectively). In multivariable analysis, ABI and eGFR were not associated with indices of SBPV. We assessed TOD based on 2013 European Guidelines for Hypertension [left ventricular hypertrophy (LVMI $> 115 \text{ g/m}^2$ in men and $> 95 \text{ g/m}^2$ in women), increased PWV (PWV $> 10 \text{ m/s}$), increased Alx@75 (Alx@75 $> 28\%$), decreased ABI (ABI < 0.9) and decreased renal function (eGFR $< 60 \text{ ml/min}$)]. In multivariable logistic regression analysis, SBPV indices were not associated with markers of TOD ($P > 0.05$).

Conclusions: Our findings support a complex relationship between SBPV and TOD in hypertension. Specifically, SBPV is more closely related to markers of ventricular and vascular compliance than other markers of TOD in hypertension.

P56 ASSOCIATION BETWEEN URIC ACID AND CARDIAC, VASCULAR AND RENAL TARGET ORGAN DAMAGE IN HYPERTENSIVES SUBJECTS

Alessandro Maloberti ^{1,2}, Marisa Varrenti ^{3,2}, Nicola Triglion ^{1,2}, Lucia Occhi ^{1,2}, Francesco Panzeri ^{1,2}, Marta Alloni ², Luca Giupponi ^{1,2}, Paola Vallerio ², Matteo Casati ⁴, Guido Grassi ¹, Giuseppe Mancia ¹, Cristina Giannattasio ^{1,2}

¹Medicine and Surgery Department, Milano-Bicocca University, Milan, Italy

²Cardiology IV Unit, "A. De Gasperi" Department, Ospedale Niguarda Ca' Granda, Milan, Italy

³Medicine and Surgery Department, Milano-Bicocca University, Milan, Italy

⁴Biochemical Laboratory, San Gerardo Hospital, Monza, Italy

Background: To date no definitive results exist about the relationship of Serum Uric Acid (SUA) and TOD in HT subjects. We sought to determine if such an association exist between SUA and subclinical cardiac, vascular and renal alterations in HT.

Methods: We enrolled 632 consecutive outpatients, followed by the Hypertension Unit of S. Gerardo Hospital (Monza, Italy) affected by essential HT. We evaluated anamnestic data, clinical BP and laboratory data as well as TOD with cardiac echocardiography (both as LMVI and diastolic function – E/A), carotid ultrasound (IMT), arterial stiffness (PWV) and renal function analysis (creatinine and microalbuminuria).

Results: Age was 53.4 ± 12.7 years, SBP/DBP were 140.5 ± 18.8 and $85.1 \pm 13.1 \text{ mmHg}$ and SUA was $5.2 \pm 1.4 \text{ mg/dL}$. Regarding TOD mean LVMI was $109.6 \pm 31.4 \text{ g/m}^2$, IMT $0.71 \pm 0.1 \text{ mm}$, PWV $8.5 \pm 2.2 \text{ m/s}$, while creatinine and microalbuminuria were $0.8 \pm 0.2 \text{ mg/dL}$ and $25.4 \pm 126.1 \text{ mg/24h}$ respectively. When subjects were divided into high and low SUA group (depending on the median SUA of 5.2 mg/dL), with similar age and BP values the first group showed significantly higher values of metabolic index (BMI, HDL chol, triglycerides and glucose, $p < 0.001$), LVMI (117.1 ± 32.8 vs $102.1 \pm 28.1 \text{ g/m}^2$, $p < 0.01$), IMT (0.73 ± 0.1 vs $0.70 \pm 0.1 \text{ mm}$, $p = 0.04$), PWV (8.8 ± 2.4 vs $8.3 \pm 2.1 \text{ m/s}$, $p = 0.01$) and creatinine (0.9 ± 0.2 vs $0.7 \pm 0.1 \text{ mg/dL}$, $p < 0.01$) and lower E/A (1.0 ± 0.3 vs 1.1 ± 0.3 , $p < 0.01$). SUA showed significant correlation with sex, age, BMI, SBP, HDL chol, triglycerides, glucose, creatinine, IMT, LVMI and E/A. Regarding TOD only creatinine presents SUA as as significant determinant in logistic regression analysis.

Conclusion: In HT, SUA values correlate with metabolic derangements and with cardiac, vascular and renal TOD. The most significant correlation is with renal damage.

P57 ASSESSMENT OF PULSE WAVE VELOCITY AND ASSOCIATION TO TARGET ORGAN DAMAGE IN TREATMENT-NAÏVE HYPERTENSIVE PATIENTS: A COMPARISON OF SPHYGMOCOR AND MOBIL-O-GRAPH

Enrique Rodilla, Jose Antonio Costa, Francisco Perez, Carmen Gonzalez, Jose Maria Pascual
Hospital de Sagunto, Valencia, Spain

Introduction: Comparison of Mobil-O-Graph[®] with SphygmoCor[®] exclusively in treatment-naïve hypertensives has never been done. Aims of the study were to assess 1) intra-device agreement between both methods, 2) inter-device agreement between two surface measurements of SC (subtracted distance (cfPWVsub)) and direct distance $\times 0.8$ (cfPWV0.8)) with two patient's positions of MG (supine (supPWVestim)) and sitting (sitPWVestim)), 3) the strength of association between tonometric and oscillometric measures of PWV with target organ damage (TOD).