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


To link to this article: https://doi.org/10.1016/j.artres.2017.10.077

Published online: 7 December 2019
Abstracts 69

**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 (AIx@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. All four variables of SBPV (bSBP, dSBP, HR, and AIx) 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). In multivariable analysis, AIx and eGFR were not associated with indices of SBPV. We assessed TOD based on 2013 European Guidelines for Hypertension (left ventricular hypertrophy (LVMI > 115 g/m² in men and >95 g/m² in women), increased PWV (PWV > 10 m/s), increased AIx@75 (AIx@75 > 28%), decreased ABI (ABI < 0.9) and decreased renal function (eGFR < 60 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.

**Table**

<table>
<thead>
<tr>
<th></th>
<th>Mean values of both sexes during daytime and nighttime.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day</td>
</tr>
<tr>
<td></td>
<td>Men</td>
</tr>
<tr>
<td>bSBP (mmHg)</td>
<td>134.5*</td>
</tr>
<tr>
<td>dSBP (mmHg)</td>
<td>86.7*</td>
</tr>
<tr>
<td>HR (bpm)</td>
<td>75.2</td>
</tr>
<tr>
<td>cSBP (mmHg)</td>
<td>136.7*</td>
</tr>
<tr>
<td>AIx (%)</td>
<td>19.8*</td>
</tr>
<tr>
<td>RM</td>
<td>60.5*</td>
</tr>
</tbody>
</table>

* Indicates a significant difference between men and women (p < 0.05); bSBP — brachial systolic blood pressure, dSBP — diastolic blood pressure, HR — heart rate, cSBP — central systolic blood pressure, AIx — 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.

**P56**

**ASSOCIATION BETWEEN URIC ACID AND CARDIAC, VASCULAR AND RENAL TARGET ORGAN DAMAGE IN HYPERTENSIVE SUBJECTS**

Alessandro Maloberti 1,2, Marisa Varrenti 3,2, Nicola Triglione 1,2, Lucia Occhi 1,2, Francesco Panzeri 1,2, Marta Alloni 2, Luca Giugni 1,2, Paola Vallero 1, Matteo Casatti 1, 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
3Biochemical 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 vascular, cardiac 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 ± 13.1 mmHg and SUA was 5.2 ± 1.4 mg/dL. Regarding TOD mean LVMI was 109.6 ± 31.4 g/m², IMT 0.7 ± 0.1 mm, PWV 8.5 ± 2 m/s, while creatinine and microalbuminuria were 0.8 ± 0.2 mg/dL and 25.4 ± 126.1 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 chyl, triglycerides and glucose, p < 0.001), LVMI (117.1 ± 32.8 vs 102.1 ± 28.1 g/m², p < 0.01), IMT (0.73 ± 0.1 vs 0.70 ± 0.1 mm, p = 0.04), PWV (8.8 ± 2.4 vs 8.3 ± 2.1 m/s, p = 0.01) and creatinine (0.9 ± 0.2 vs 0.7 ± 0.1 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 chyl, 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-NAIVE HYPERTENSIVE PATIENTS: A COMPARISON OF SPHYGMOCOR AND MOBIL-O-GRAPH**

Enrique Rodilla, Jose Antonio Costa, Francisco Perez, Carmen Gonzalez, Jose Marta 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 < 0.8 (cFPWV0,8) with two patient’s positions of MG (supine (SupPWave)) and sitting (sitPWave)), 3) the strength of association between tonometric and oscilometric measures of PWV with target organ damage (TOD).