P60: PSYCHOLOGICAL DETERMINANTS OF TARGET ORGAN DAMAGE IN HYPERTENSIVE PATIENTS: FOCUS ON PULSE WAVE VELOCITY AND DEPRESSION

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Methods: Cross-sectional, observational study in 171 consecutive, treatment-naive subjects derived to a Hypertension Unit with suspected hypertension. Standard echocardiography, ECG, carotid ultrasound and laboratory tests were performed.

Results: Mean age was 49.7 years, 57.3% were women. Reproducibility: Mean differences (±SD of the difference (SDD)) between duplicate SC and MG PWV measurements were non-significant. Agreement: cfPWVsub 0.8 yielded the highest PWV values (8.17 ± 1.6 m/s), followed by cfPWVsub (7.98 ± 1.7 m/s), supPWVestim (7.93 ± 1.7 m/s) and sitPWVestim (7.80 ± 1.6 m/s).

We observed significant mean differences only between cfPWV0.8 and all other PWV measures: with cfPWVsub (0.23 m/s, p = 0.001), with sitPWVestim (0.19 m/s, p = 0.001) and with supPWVestim (0.38 m/s, p = 0.002). No significant correlation was found between the mean and the difference for PWV in any comparison. Association with cardiac damage was highest with cfPWVsub, supPWVestim and sitPWVestim were more closely related to carotid damage, though differences were not significant.

Conclusions: SC and MG showed similar and acceptable reproducibility. SC and MG were interchangeable only using subtracted distance (cfPWVsub), other PWV measures: with cfPWVsub (0.23 m/s, p = 0.001), with sitPWVestim (0.19 m/s, p = 0.001) and with supPWVestim (0.38 m/s, p = 0.002). Mean age was 49.7 years, 57.3% were women. Reproducibility: Mean differences (±SD of the difference (SDD)) between duplicate SC and MG PWV measurements were non-significant. Agreement: cfPWVsub 0.8 yielded the highest PWV values (8.17 ± 1.6 m/s), followed by cfPWVsub (7.98 ± 1.7 m/s), supPWVestim (7.93 ± 1.7 m/s) and sitPWVestim (7.80 ± 1.6 m/s).

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### Table 3. Differences between PWV measured by planimetry notation according to two surface measurements and by brachial oscillometry according to supine ox sitting position.

<table>
<thead>
<tr>
<th>Comparison of PWV</th>
<th>Mean difference CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>cfPWVsub-supPWVestim</td>
<td>0.16</td>
<td>-0.06-0.37</td>
</tr>
<tr>
<td>cfPWVsub-sitPWVestim</td>
<td>0.18</td>
<td>-0.034-0.39</td>
</tr>
<tr>
<td>cfPWV0.8-supPWVestim</td>
<td>0.38</td>
<td>0.15-0.62</td>
</tr>
<tr>
<td>cfPWV0.8-sitPWVestim</td>
<td>0.39</td>
<td>0.15-0.63</td>
</tr>
<tr>
<td>cfPWV0.8-cfPWVsub</td>
<td>0.23</td>
<td>0.12-0.35</td>
</tr>
<tr>
<td>supPWVestim-sitPWVestim</td>
<td>0.02</td>
<td>-0.07-0.12</td>
</tr>
</tbody>
</table>

Conclusions: SC and MG showed similar and acceptable reproducibility. SC and MG were interchangeable only using subtracted distance (cfPWVsub), while direct distance x 0.8 showed significantly higher PWV values. Association to TOD was significant and similar between SC and MG.

### P59

**ARTERIAL STIFFNESS AND PERIPHERAL VASCULAR RESISTANCE IN OFFSPRING OF HYPERTENSIVE PARENTS — INFLUENCE OF GENDER AND OTHER CONFOUNDERS**

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Aim: Established essential hypertension (EH) is associated with increased arterial stiffness and peripheral resistance, but the extent of vascular changes in persons genetically predisposed for EH is uncertain.

Methods: Participants from the Danish Hypertension Prevention Project (DHyPP) (having two hypertensive parents) (n = 95, 41 ± 1 years, 53% males) were compared to available spouses (n = 45, age 41 ± 1 years, 43% males). The subjects had measurements of ambulatory blood pressure (BP), left ventricular mass (LVM), pulse wave velocity (PWV), central BP and augmentation index (Alx) in addition to forearm resting and minimal resistance (Rmin and Rnabr).

Results: DHyPP subjects with and without spouses were comparable and the DHyPP cohort, as compared to spouses, had higher 24-hour mean BP (94 ± 1 vs. 88 ± 1 mmHg, P < 0.01), LVM (90.2 ± 2 vs. 80.2 g/m², P < 0.01), central systolic BP (119 ± 2 vs. 111 ± 2 mmHg, P < 0.01) and Alx (15.1 ± 1.2 vs. 10.5 ± 1.7%, P < 0.01), but similar values of carotid-femoral PWV (7.3 ± 0.1 vs. 7.1 ± 0.2 m/s, P < 0.01), Rmin (51 ± 2 vs. 51 ± 3 mmHg/ml/min/100 ml) and log Rnabr (0.57 ± 0.02 vs. 0.55 ± 0.02 mmHg/ml/min/100 ml). Alx, Rnabr and Rmin were higher in female as compared to male DHyPP participants (P < 0.01 for all) and the same was true for Alx and Rmin among spouses (P < 0.05).

Using multiple linear regression analysis adjusting for gender, age, body mass index, 24-hour BP, 24-hour sodium excretion and creatinine clearance, Alx remained elevated in DHyPP subjects (3.4% [0.18; 6.60], P = 0.039). Furthermore, Alx was linearly associated with Rnabr and Rmin.

Conclusions: Young to middle-aged individuals genetically predisposed for EH display increased Alx, while vascular stiffness and peripheral resistance are still normal.
and diabetes. However, scanty data are available on the role of psychological factors on arterial stiffness. The aim of the current cross-sectional study was to evaluate the association between depression, anxiety, perceived stress, Type A personality, and Type D personality and Pulse Wave Velocity (PWV) in a cohort of hypertensive patients, using baseline examination data of the TIPICO project.

**Methods:** A total of 259 outpatients (ages 18–80 years) followed by the Hypertension Unit of S. Gerardo Hospital (Monza, Italy) affected by essential hypertension were recruited. Aortic stiffness was evaluated by c-f PWV. Moreover, anamnestic data, clinical BP, and laboratory data were evaluated. Patients were asked to complete a battery of psychological questionnaires under the guidance of a psychologist.

**Results:** At T0 mean age was 55.9 ± 10.1 years, SBP and DBP were 135.6 ± 17.7 and 82.5 ± 9.1 mmHg and PWV was 8.6 ± 2.1 m/s. The multivariate stepwise linear regression analysis showed that age (beta = 0.284, p < 0.001), pulse pressure (beta = 0.369, p < 0.001), dyslipidemia (beta = 0.130, p = 0.012), family history of CV disease (beta = -0.123, p = 0.017), and depression (beta = 0.126, p = 0.014) were significantly and independently associated with PWV.

**Conclusion:** Among psychological factors, higher levels of depression is related to higher PWV, while anxiety, perceived stress, Type-A personality and Type-D personality are not. Depression assessment and target intervention to reduce it should be recommended in hypertensive patients.

**P61**

**PSYCHOLOGICAL DETERMINANTS OF TARGET ORGAN DAMAGE IN HYPERTENSIVE PATIENTS: FOCUS ON TYPE A PERSONALITY AND LEFT VENTRICULAR MASS INDEX**

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**Background:** Increased Left Ventricular Mass Index (LVMI) is a well known risk factor for cardiac morbidity and mortality. Furthermore, it is widely recognized that clinical evolution and progression of established CV diseases are related to a range of psychological characteristics, which may partially explain the spread and recurrence of these diseases. Little is known about LVM and its association with psychological characteristics in arterial Hypertension (HT) patients. The aim of the current cross-sectional study was to evaluate the association between psychological characteristics and LVM in a cohort of hypertensive patients.

**Methods:** A total of 244 outpatients (age 18–80 years) followed by the Hypertension Unit of S. Gerardo Hospital (Monza, Italy) affected by essential hypertension were recruited. Anamnestic data, clinical BP, and laboratory data and LVMI were evaluated. Patients were asked to complete a battery of psychological questionnaires under the guidance of a psychologist.

**Results:** At T0 the mean age was 55.9 ± 10.1 years, SBP and DBP were 135.6 ± 17.7 and 82.5 ± 9.1 mmHg and PWV was 8.6 ± 2.1 m/s. The multivariate stepwise linear regression analysis showed that sex (beta = 0.252, p < 0.001), age (beta = 0.135, p < 0.037), mean BP (beta = 0.178, p = 0.003), family history of CV disease (beta = 0.129, p = 0.027), and Type-A personality (beta = 0.148, p = 0.014) were significantly and independently associated with LVMI.

**Conclusion:** Among psychological factors, higher levels of Type-A personality is related to higher LVMI, while Type-D personality, anxiety, depression and stress are not associated.

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**Table 1. Changes in measure carotid properties with 3.5-year follow-up.**

<table>
<thead>
<tr>
<th></th>
<th>DecreasedDBP (n = 53)</th>
<th>ConstantDBP (n = 67)</th>
<th>IncreasedDBP (n = 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔcPWV [m/s]</td>
<td>-1.0 ± 1.4</td>
<td>+0.6* ± 1.4</td>
<td>+0.5* ± 1.5</td>
</tr>
<tr>
<td>ΔRWT [-]</td>
<td>0.00 ± 0.04</td>
<td>0.00 ± 0.04</td>
<td>-0.02**, -0.04</td>
</tr>
<tr>
<td>ΔYoung’s-modulus [MPa]</td>
<td>0.38</td>
<td>0.18</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Δ calculated as follow-up — baseline. *: p < 0.05 compared to decreasedDBP. **: p < 0.05 compared to constantDBP. The bold indicates that there is a statistically significant difference between follow-up and baseline.

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**Conclusions:** In this outpatient cohort, with clear DBP reduction, there is a discontinuation of carotid stiffening, but no reversal. In patients with increased DBP, progressive carotid stiffening appears driven by impaired wall stress homeostasis.

**References**
