P11.08: EVALUATION OF ARTERIAL STIFFNESS IN CHRONIC KIDNEY DISEASE (CKD) STAGE 2-5 BY PULSE WAVE MEASUREMENTS AND AMBULATORY ARTERIAL STIFFNESS INDEX (AASI)

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Results: As expected, clinic blood pressure values and media to lumen ratio were higher in essential hypertensive patients than in normotensive controls. Fibronectin media content was significantly greater in essential hypertensive patients (7.41 ± 2.28 %), compared with normotensive controls (5.62 ± 0.40, P < 0.05). A significant correlation was observed between fibronectin media content and media to lumen ratio (r = 0.49, P < 0.05). No significant difference in laminin media content was observed between groups (3.7 ± 1.7 % in essential hypertensive patients, 5.63 ± 1.79 % in normotensive controls).

Conclusions: Our results indicate that, in small resistance arteries of patients with essential hypertension, fibronectin, but not laminin media content is increased. Fibronectin might be therefore involved in the developement of small resistance artery remodeling in humans.

P11.07
DIFFERENCE BETWEEN SYSTOLIC AND DIASTOLIC CAROTID ARTERY STIFFNESS IS INDEPENDENTLY ASSOCIATED WITH LEFT VENTRICULAR MASS INDEX IN HEALTHY MIDDLE-AGED SUBJECTS

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Background: Arterial stiffening potentially plays a role in cardiac hypertrophy. We recently demonstrated in patients that arterial stiffness can be substantially pressure dependent and, here, introduce a non-invasive measure to quantify the pressure dependence in the carotid artery, defined as the difference between systolic and diastolic pulse wave velocity (PWVdiff). Both PWVdiff and peripheral wave reflections (quantified by augmentation index, Alx) are biomechanically related to (late) systolic pressure increase. Therefore, we investigated the associations of PWVdiff and Alx with left ventricular mass index (LVMi).

Methods and Results: In 1522 subjects of the Asklepios cohort (age 35-55 yrs, healthy) PWVdiff was calculated from segmental distensibility coefficients, as obtained by carotid artery ultrasound and tonometry (Figure). PWVdiff – PWPd was measured by carotid artery ultrasound and tonometry (Figure). PWVdiff ranged from 0.7 to 4.4 m/s. Linear regression analysis showed a significant difference between PWVdiff and Alx as obtained by carotid artery ultrasound and tonometry (Figure). PWVdiff ranged from 0.7 to 4.4 m/s. Linear regression analysis showed a significant difference between PWVdiff and Alx was 0.44 ± 0.15, mean AIx was 28.2 ± 10.4% and mean aPWV was 9.4 ± 1.0 m/s with no significant differences among the stages. The SCC between AIx and aPWV was 0.320 (P = 0.01), between AASI and aPWV it was 0.643 (P = 0.0001) and between AIx and aPWV it was 0.346 (P = 0.006). ICCaPWV was 0.755 (95% CI: 0.630-0.841) with even greater reproducibility in CKD stages 4-5 (ICC = 0.860).

Conclusions: The observed values of AASI in CKD patients were similar to those reported for the background population, while AIx and aPWV were higher. Despite good correlations between these parameters, the normal values of AASI found in the present study preclude its use as an index of vascular stiffness in CKD. Intra-patient reproducibility of AASI in CKD stage 2-5 was high.

P11.09
SYSTEMIC ARTERIAL PROPERTIES IN WOMEN 3 YEARS AFTER A PRE-ECLAMPTIC PREGNANCY

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Purpose: Pre-eclampsia is defined by hypertension and proteinuria, occurs in 3-10% of all pregnancies. The pathophysiological adaptation of systemic arterial properties has not been described. We performed a comprehensive study of systemic arterial properties in women with previous pre-eclamptic pregnancy (PPEP) as compared to women with previous normal pregnancy (PNP).

Methods: 35 women (37±4 years) with PPEP (3.5±1.0 years) and 65 (33±1 years) with PNP (6 months postpartum) were studied. Aortic root pressure and flow were obtained by calibrated right subclavian artery pulse trace, and aortic anular Doppler blood flow recordings. Systemic arterial properties were described by total arterial compliance (C), arterial elastance (Ea), characteristic impedance (Z0), and peripheral arterial resistance (R). Wave reflection was assessed as the ratio of the magnitude of the backward (Pb) to forward (Pf) pressure wave.

Results: Pre-eclampsia was defined by hypertension and proteinuria, occurs in 3-10% of all pregnancies. The pathophysiological adaptation of systemic arterial properties has not been described. We performed a comprehensive study of systemic arterial properties in women with previous pre-eclamptic pregnancy (PPEP) as compared to women with previous normal pregnancy (PNP).

<table>
<thead>
<tr>
<th>PPEP</th>
<th>PNP</th>
<th>P</th>
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<tbody>
<tr>
<td>Mean arterial pressure (mmHg)</td>
<td>102±17</td>
<td>86±8</td>
</tr>
<tr>
<td>Systolic pressure (mmHg)</td>
<td>129±21</td>
<td>110±9</td>
</tr>
<tr>
<td>Heart rate (min⁻¹)</td>
<td>70±7</td>
<td>66±7</td>
</tr>
<tr>
<td>Cardiac output (l/min⁻¹)</td>
<td>5.5±1.2</td>
<td>4.9±0.9</td>
</tr>
<tr>
<td>R (mmHg•ml⁻¹•s⁻¹)</td>
<td>1.16±0.31</td>
<td>1.10±0.29</td>
</tr>
<tr>
<td>Z0 (10⁻⁵ mmHg•ml⁻¹•s⁻¹)</td>
<td>72±30</td>
<td>55±22</td>
</tr>
</tbody>
</table>

Conclusions: The higher blood pressures in women with PEP is not explained by higher peripheral arterial resistance, but is likely related to a stiffer proximal aorta, and lower arterial compliance. This may relate to the higher risk for later cardiovascular events observed in women with PEP.