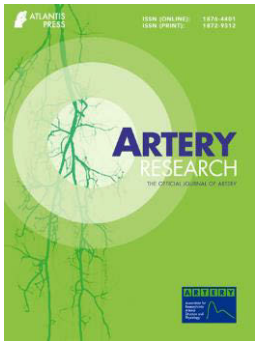

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P59: ARTERIAL STIFFNESS AND PERIPHERAL VASCULAR RESISTANCE IN OFFSPRING OF HYPERTENSIVE PARENTS – INFLUENCE OF GENDER AND OTHER CONFOUNDERS

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Methods: Cross-sectional, observational study in 171 consecutive, treatment-naïve 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: cfPWV0.8 yielded the highest PWV values (8.17 ± 1.6 m/s), followed by cfPWVsub (7.98 ± 1.7 m/s), supPWVestim (7.83 ± 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 (0.39 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.

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

Comparison of PWV	Mean difference	CI	p
cfPMVsub—supPWVestim	0,16	−0,06/0,37	0,149
cfPWVsub—sitPWVestim	0,18	−0,034/0,39	0,098
cfPWV0.8—supPWVestim	0,38	0,15/0,62	0,002
cfPWV0.8—sitPWVestim	0,39	0,15/0,63	0,001
cfPWV0.8—cfPWVsub	0,23	0,12/0,35	0,000
supPWVestim—sitPWVestim	0,02	−0,07/0,12	0,635

cfPWV0.8: direct distance x 0.8-based carotid-femoral PWV.
cfPWVsub: subtracted distance-based carotid-femoral PWV.
sitPWVestim: estimated aortic PWV in sitting position.
supPWVestim: estimated aortic PWV in supine position.

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.

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ARTERIAL STIFFNESS IS ASSOCIATED WITH LOWER PERFORMANCE ON THE COGNITIVE TESTS AT DIFFERENT DOMAINS IN HYPERTENSIVE PATIENTS

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Background: Cognitive impairment and elevated arterial stiffness are described in arterial hypertension (AH), but its correlations are not well studied.
Objectives: To study the cognitive function at different domains and arterial properties in patients with AH stage 1 to 3 compared to normotensives and to evaluate the correlations between these variables.
Methods: We evaluated 71 normotensives (52 ± 14 yrs, 47% male, 65% white) and 150 patients with stage 1—3 AH (52 ± 12 yrs, 45% male, 70% white) under treatment. The global cognitive function was assessed by Mini Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA).A validated battery of neuropsychological tests (NPE) assessed the main cognitive areas: memory, language, visuospatial ability, executive function, attention. Pulse wave velocity (PWV) was measured by Complior® device. Carotid properties were assessed by radiofrequency ultrasound (WTS®). Central arterial pressure and augmentation index (AIx) were obtained using applanation tonometry (Sphygmocor®).
Results: Mean BP of the normotensive group (122.1 ± 8/76.7 ± 7 mmHg) was significantly lower than hypertensive patients (135.2 ± 13/83.3 ± 10 and 149.9 ± 29/91.5 ± 16 mmHg). Severe HTN group had worse performance in cognitive evaluation either by MMSE (26.8 ± 2.1 vs 27.4 ± 2.1 vs. 28.0 ± 2.0, p = 0.004) or MoCA test (23.4 ± 3.7 vs. 24.9 ± 2.8 vs. 25.5 ± 3.2, p < 0.001). On the neuropsychological tests hypertensive patients had worse performance mainly in visuoperceptual and visuospatial capacities and executive function. On the multivariate regression analysis, the following independent associations were observed: Aix—language, executive function, visuospatial and attention; cSBP—MoCA; IMT—memory and attention; PWV—memory, executive function, visuospatial and attention. Higher PWV group had more cognitive dysfunction.
Conclusions: Cognitive impairment at different domains was more frequent in patients with different stages of AH. Arterial functional and structural properties were diversely associated with cognitive performance at different domains.

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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 (AIx) in addition to forearm resting and minimal resistance (R_{rest} and R_{min}).
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 vs. 80 ± 2 g/m^2, $P < 0.01$), central systolic BP (119 ± 2 vs. 111 ± 2 mmHg, $P < 0.01$) and AIx (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), R_{rest} (51 ± 2 vs. 51 ± 3 mmHg/ml/min/100 ml) and log R_{min} (0.57 ± 0.02 vs. 0.55 ± 0.02 mmHg/ml/min/100 ml). AIx, R_{rest} and R_{min} were higher in female as compared to male DHyPP participants ($P < 0.01$ for all) and the same was true for AIx and R_{min} 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, AIx remained elevated in DHyPP subjects (3.4% [0.18; 6.60], $P = 0.039$). Furthermore, AIx was linearly associated with R_{rest} and R_{min}.
Conclusion: Young to middle-aged individuals genetically predisposed for EH display increased AIx, while vascular stiffness and peripheral resistance are still normal.

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

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Objective: Prior studies have suggested that the principal determinants of arterial stiffening are age, BP and others CV risk factors such as dyslipidemia