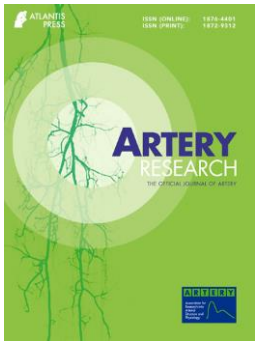

Artery Research

ISSN (Online): 1876-4401 ISSN (Print): 1872-9312
Journal Home Page: https://www.atlantis-press.com/journals/artres

P39: LEFT VENTRICULAR STRUCTURE AND FUNCTION IN RELATION TO PERIPHERAL AND CENTRAL BLOOD PRESSURE IN A GENERAL POPULATION

Wenyi Yang, Ljupcho Efremov, Zhen-Yu Zhang, Nicholas Cauwenberghs, Lutgarde Thijs, Fang-Fei Wei, Qi-Fang Huang, Blerim Mujaj, Aernout Luttun, Peter Verhamme, Tatiana Kuznetsova, Jan Staessen

To cite this article: Wenyi Yang, Ljupcho Efremov, Zhen-Yu Zhang, Nicholas Cauwenberghs, Lutgarde Thijs, Fang-Fei Wei, Qi-Fang Huang, Blerim Mujaj, Aernout Luttun, Peter Verhamme, Tatiana Kuznetsova, Jan Staessen (2017) P39: LEFT VENTRICULAR STRUCTURE AND FUNCTION IN RELATION TO PERIPHERAL AND CENTRAL BLOOD PRESSURE IN A GENERAL POPULATION, Artery Research 20:C, 66–66, DOI: https://doi.org/10.1016/j.artres.2017.10.069

To link to this article: https://doi.org/10.1016/j.artres.2017.10.069

Published online: 7 December 2019

Results: At each blood pressure (BP) level, there was a quadratic association between CAVI and age, except for a linear association in the optimal BP group. While there was no association between BP and CAVI in younger subjects, there was a linear association between CAVI and BP after 40 years of age. Reference values by age and gender were established. In each age group, except for the male 60–65 group, reference values in our population were lower than in the Japanese one with the difference ranging from −0.29 to 0.21 for males, and from −0.38 to −0.03 for females.
Conclusion: This is the first study providing CAVI reference values in a random sample of the Caucasian population. Our results suggest that the currently used values slightly overestimate CAVI in younger Caucasian, possibly underestimating cardiovascular risk.

P38
ASCENDING AORTA DIMENSIONS AND CLINIC AND 24 HOURS BLOOD PRESSURE IN A GENERAL POPULATION IN NORTHERN ITALY: THE VOBARNO STUDY

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Background: Epidemiological studies have suggested that even mild enlargement of the ascending aorta may have independent prognostic significance for cardiovascular events.
Therefore, some Authors have proposed that dilatation of the ascending aorta could be considered as a form of preclinical vascular damage in hypertensive patients.
Aim: To assess the correlation between clinic and 24 hours BP values and the dimensions of the aorta, measured at level of the sinuses of Valsalva (Val), at the left ventricular outflow tract (LVOT), and at the level of the proximal ascending aorta (AscAO) in subjects from a general population.
Methods: 250 subjects (43% males, mean age 56 ± 4 years, 42% hypertensives-HT) underwent laboratory examinations, clinic and 24 hours BP measurement, cardiac and carotid ultrasound, carotid-femoral pulse wave velocity measurement (AoPWV).
Results: aortic diameters were greater HT as compared to NT (Val: 3.41 ± 0.54 vs 3.25 ± 0.41 cm, LVOT 2.10 ± 0.28 vs 2.04 ± 0.26, AscAo 3.39 ± 0.45 vs 3.18 ± 0.38, all $p < 0.05$). Aortic diameters were all correlated to clinic and 24 hours BP values. The coefficients of correlation were greater for 24 hours BP (Tab). Val, AscAo, LVOT were also significantly correlated with left ventricular mass ($r = 0.61$, $r = 0.48$, and $r = 0.43$, all $p < 0.001$), mean max intima media thickness ($r = 0.13$, $r = 0.24$, and $r = 0.13$, all $p < 0.05$) and with AoPWV ($r = 0.16$, $p < 0.05$, $r = 0.28$ $p < 0.001$, $r = 0.08$ $p =$ ns).

	Ao Valsalva		Asc		LVOT	
	r	p	r	p	r	p
SBP	0.148*	0.019	0.161*	0.016	0.135*	0.037
DBP	0.253**	0.0001	0.223**	0.001	0.189**	0.003
MBP	0.220**	0.0001	0.175**	0.006	0.208**	0.002
PP	−0.046	0.470	0.004	0.948	0.003	0.968
HR	−0.005	0.933	−0.028	0.687	−0.004	0.949
SBP 24 hrs	0.231**	0.0001	0.162*	0.017	0.108	0.097
DBP 24 hrs	0.346**	0.0001	0.264**	0.0001	0.234**	0.0001
MBP 24 hrs	0.267**	0.0001	0.214**	0.002	0.164*	0.011
PP 24 hrs	−0.003	0.962	−0.031	0.645	−0.082	0.209
HR 24 hrs	−0.058	0.370	−0.051	0.454	−0.026	0.687

Conclusions: The dimensions of the proximal ascending aorta are significantly related to BP values in normotensive subjects and in hypertensive patients. Aortic dimension are more strictly related to twenty-four hours BP values than to clinic BP values. In this sample of general population, a significant correlation between aortic dimensions and measures of cardiac and vascular organ damage was also observed, confirming the parallelism between different forms of organ damage.

P39
LEFT VENTRICULAR STRUCTURE AND FUNCTION IN RELATION TO PERIPHERAL AND CENTRAL BLOOD PRESSURE IN A GENERAL POPULATION

Wenyi Yang [1], Ljupcho Efremov [1], Zhen-Yu Zhang [1], Nicholas Cauwenberghs [1], Lutgarde Thijs [1], Fang-Fei Wei [1], Qi-Fang Huang [1], Blerim Mujaj [1], Aernout Luttun [2], Peter Verhamme [2], Tatiana Kuznetsova [1], Jan Staessen [1]
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Background: Central blood pressure (BP) is a predictor of target organ damage. No previous study addressed the question to what extent central compared with peripheral is related to left ventricular (LV) structure and function in a general population.
Methods: In 577 Flemish recruited from the general population (47.8% women; mean age 50.5 years), we assessed the multivariable-adjusted associations of echocardiographic LV structure and systolic and diastolic LV function (Vivid7 Pro device; EchoPac software, version 4.0.4; GE Vingmed, Horten, Norway) with peripheral and central pressure, as recorded by radial applanation tonometry (SphygmoCor software, version 9.0). Association sizes were expressed per 15/10 mmHg increment in peripheral or central systolic/diastolic BP.
Results: Peripheral compared with central systolic BP was 10.2 mm Hg higher ($P < 0.0001$), whereas diastolic BP was similar peripherally and centrally ($P = 0.50$). Associations were closer ($P \leq 0.020$) with central than peripheral systolic BP for LV mass (+0.59 g/m^2) and left atrial volume (+0.29 ml/m^2) indexed to body surface area, peak A transmitral flow (+0.12 cm/s), peak e' mitral annular movement (−0.18 cm/s) and the E/A ratio (−0.017). Associations were closer ($P \leq 0.038$) with central than peripheral diastolic BP for left atrial volume index (+0.289 ml/m^2), e' (−0.123 cm/s) and E/e' (+0.094). Ejection fraction and global longitudinal strain were similarly associated with central and peripheral systolic ($P \geq 0.62$) and diastolic ($P \geq 0.18$) BP.
Conclusions: In asymptomatic people recruited from the general population, LV mass and atrial volume indexes and selected haemodynamic measurements reflecting diastolic LV function are slightly but significantly closer associated with central than peripheral BP.

P40
DOES ARTERIAL AGEING DIFFER BETWEEN EUROPEANS AND JAPANESE AND KOREAN PATIENT SAMPLES? RESULTS FROM CURRENT UK STUDIES

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Objective: Vascular stiffness has long been linked with the ageing process. However, it is only since the development of accurate methods for measuring arterial compliance that unravelling this relationship has become possible. Arterial stiffening over time appears to differ between ethnic groups and/or geographic areas. We investigated how the cardio-ankle vascular index (CAVI) varied with chronological age to make initial comparisons of its change with age between this European study and published data from Japanese and Korean patient populations.
Method: 312 participants (180 men, 132 women), age 63.7 ± 12.9 (mean ± SD), range 25–92 years. The following were measured: CAVI using VaSera VS-1500N® (Fukuda Denshi, Japan); brachial BP using OMRON705-IT; baseline characteristics and physical examination of cardiovascular health. These data are from current UK studies of healthy volunteers with approximately 20% having two or more cardiovascular risk factors.
Results: CAVI was significantly correlated with age ($r = 0.63$, $p < 0.001$), more closely in men ($r = 0.71$, $p < 0.001$) than women ($r = 0.54$, $p < 0.001$). These data were used to create a preliminary set of 'usual' average CAVI values for each age category (Table) and compared against data from Japan [1] and Korea [2] (plot 1 & 2). Korean men had lower CAVI values at each age.