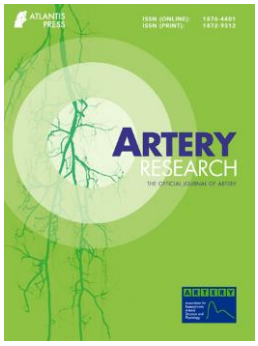


Artery Research

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

P6.08: 'AMBULATORY' AORTIC PULSE WAVE VELOCITY IS HIGHLY REPRODUCIBLE AND INDEPENDENTLY CORRELATES WITH KIDNEY FUNCTION IN OLDER MEN

L.J. Keith, M.A. Keske, S. Rattigan, J.E. Sharman

To cite this article: L.J. Keith, M.A. Keske, S. Rattigan, J.E. Sharman (2011) P6.08: 'AMBULATORY' AORTIC PULSE WAVE VELOCITY IS HIGHLY REPRODUCIBLE AND INDEPENDENTLY CORRELATES WITH KIDNEY FUNCTION IN OLDER MEN, Artery Research 5:4, 173–173, DOI: https://doi.org/10.1016/j.artres.2011.10.093

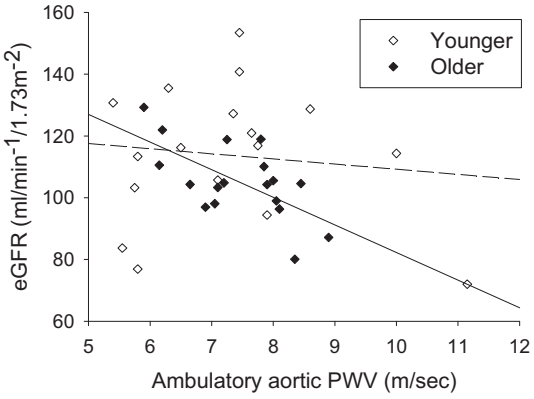
To link to this article: https://doi.org/10.1016/j.artres.2011.10.093

Published online: 14 December 2019

P6.07
POPSCORE: A NEW INDEX TO EVALUATE ARTERIAL AGEING INDEPENDENTLY OF ARTERIAL BLOOD PRESSURE

M. Hallab, J. M. Boin, M. Tramblay, P. Chevalet
CHU de Nantes, Nantes, France

Hypothesis: PWV don't correlate with age in the upper limb but in the aorta and lower limb.
Aim: To study the relationship between ageing and indices based on pulse wave transit time (PWTT) between the toe and the finger.
Material and methods: measurements were performed in 300 patients in primary care and occupational practice, after 5 minutes of supine rest using a new device (pOpmètre® - Axelife SAS - France) which measures the toe and finger PWTT relative to R-ECG wave. Difference of PWTT between the toe and finger (DTF) was computed and, using a chart based on body height, we calculated the PWVtf [PWVtf = k *subject's height / DTF] and the pOpscore® (toePWV / fingerPWV) indices.
Results: Of the tested 300 patients, 147 (93 men and 54 women aged 45yrs ± 2 vs. 40yrs ± 2, p=0.048 respectively) with 0 or only 1 conventional risk factor and without known POAD or Vasodilator therapy.



	Sex anova (F; p)	Age (years) (r^2; p)	Weight (Kg) (r^2; p)	Height (cm) (r^2; p)	SBP (mmHg) (r^2; p)	DBP (mmHg) (r^2; p)	MBP (mmHg) (r^2; p)	BMI (Kg/m^2) (r^2; p)
DTF (sec)	0.01;ns	0.69;10^{-4}	0.001;ns	0.02;0.08	0.29;10^{-4}	0.07;10^{-3}	0.18; 10^{-4}	0.04;0.01
PWVtf (m/s)	0.10;ns	0.69;10^{-4}	0.003;ns	0.01;ns	0.22;10^{-4}	0.03;0.02	0.12; 10^{-4}	0.014; ns
pOpscore®	0.04;ns	0.60;10^{-4}	0.008;ns	0.01;ns	0.23;10^{-4}	0.07;10^{-3}	0.15; 10^{-4}	0.02;0.04

Using stepwise regression analysis, (variables to enter: Age, BMI, SBP, DBP, MBP), 1) DTF was dependent with age (p <0.0001) and SBP (p <0.01); 2) PWVtf with age (p <0.0001), SBP (p <0.01) and DBP (p <0.05); 3) pOpscore® was dependent only with age (p <0.0001) not with SBP (p > 0.07).
Conclusion: In this study,
1- All variables were correlated to age and blood pressure.
2- pOpscore® is related only to ageing independently from blood pressure.
3- pOpmètre® is a promising technique for the routine determination of vascular ageing in primary care medicine.

P6.08
'AMBULATORY' AORTIC PULSE WAVE VELOCITY IS HIGHLY REPRODUCIBLE AND INDEPENDENTLY CORRELATES WITH KIDNEY FUNCTION IN OLDER MEN

L. J. Keith, M. A. Keske, S. Rattigan, J. E. Sharman
Menzies Research Institute Tasmania, Hobart, Australia

Introduction: Aortic pulse wave velocity (PWV) independently predicts end-organ damage and mortality. However, these relationships have only been assessed at rest. Considering light exercise ('ambulatory') conditions better represent chronic BP exposure, we developed a technique to approximate ambulatory aortic PWV (AaPWV). This study aimed to determine the reproducibility of the technique and relation of AaPWV to end-organ damage.
Methods: Carefully screened healthy younger (n=17, 30±8 years) and older (n=18, 54±8 years) untreated men underwent comprehensive cardiovascular assessment at rest and whilst 'ambulatory' (during low intensity semi-recumbent cycling). Applanation tonometry was used to assess AaPWV (carotid-to-femoral arterial sites) and central BP. All participants underwent 24-hour ambulatory BP (24-ABP). Kidney function was assessed by estimated glomerular filtration rate (eGFR). Fifteen participants had testing repeated within 30±19 days.
Results: AaPWV had excellent reproducibility (mean difference=-0.35±0.61 m/s, ICC=0.874, p<0.001). For all participants, AaPWV was 23±17% higher than resting aortic PWV (6.0±1.0 vs. 7.4±1.2 m/s, p<0.001). In younger men, eGFR (114±23 ml/min/1.73 m^2) was not correlated to resting aortic PWV (r=-0.031, p=0.906) or AaPWV (r=-0.117, p=0.655). Similarly, in older men, eGFR (105±12 ml/min/1.73 m^2) was not related to resting aortic PWV (r=-0.400, p=0.100). However, AaPWV was significantly correlated with eGFR on univariate analysis in older men (see figure, r=-0.633, p=0.005), and this was maintained after correction for age, BMI and 24-ABP (β=-0.606, p=0.017).
Conclusions: AaPWV is highly reproducible and independently associated with kidney function in apparently healthy older men. Further studies to determine the physiology and clinical relevance of raised AaPWV are warranted.

P6.09
WAITING A FEW EXTRA MINUTES BEFORE MEASURING CENTRAL BLOOD PRESSURE POTENTIALLY HAS IMPORTANT CLINICAL AND RESEARCH RAMIFICATIONS

S. B. Nikolic [1], J. E. Sharman [1], W. P. Abhayaratna [2]
[1]*Menzies Research Institute Tasmania, University of Tasmania, Hobart, Australia*
[2]*Australian National University, Canberra, Australia*

Background: Clinic brachial BP averaged over 10 minutes correlates more strongly with out-of-office BP compared with BP recorded after the recommended 5 minutes rest. Central BP is a stronger predictor of mortality than brachial BP. However, the clinical value of measuring central BP after 5 compared with 10 minutes rest has never been assessed and was the aim of this study.
Methods: Clinic brachial and central BP, 7 day home BP and left ventricular mass index (LVMI) were measured in 250 patients with treated hypertension (aged 64±8 years). Clinic seated BP was measured at two time points; time 1) after 5 minutes, as per recommendations, and time 2) after 10 minutes.
Results: Brachial and central BP's were significantly lower at time 2 compared to time 1 (p<0.001 for all). Time 1 brachial SBP was significantly higher than 7 day SBP (131.3±14.9 vs. 127.6±12.3 mmHg; p<0.001). However, time 2 brachial SBP was almost identical to 7 day SBP (127.1±13.5 mmHg; mean difference 0.6±13.7 mmHg; p=0.511). Moreover, time 2 brachial and central pulse pressures significantly correlated with LVMI (r=0.171, p=0.006 and r=0.139, p=0.027, respectively), whereas there were no significant correlations with time 1 brachial or central pulse pressures (r=0.115, p=0.068 and r=0.084, p=0.185, respectively).
Conclusion: Clinic brachial BP recorded after 10 minutes is closely representative of out-of-office BP, and the corresponding central BP values are more clinically relevant than those acquired after the conventional 5 minutes rest. These findings have relevance to appropriate diagnosis of hypertension and design of clinical trials.

P6.10
COMPARISON OF SPHYGMOCOR AND VICORDER DEVICES FOR CAROTID-FEMORAL PWV MEASUREMENT IN THE SECOND TRIMESTER OF PREGNANCY

T. R. Everett [1], A. Mahendru [1], C. M. McEniery [2], C. C. Lees [1], I. B. Wilkinson [2]
[1]*Dept of Fetal Medicine, Box 228, Addenbrooke's Hospital, Cambridge University Hospitals NHS Trust,, Cambridge, United Kingdom*