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POPScore: A NEW INDEX TO EVALUATE ARTERIAL AGEING INDEPENDENTLY OF ARTERIAL BLOOD PRESSURE

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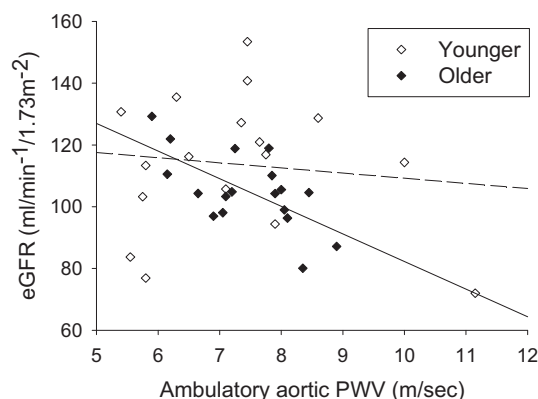
Hypothesis: PWV don't correlate with age in the upper limb but in the aorta and lower limb.

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 (pOpmetre® - 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.

determine the physiology and clinical relevance of raised AaPWV are warranted.



	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,

- All variables were correlated to age and blood pressure.
- pOpscore® is related only to ageing independently from blood pressure.
- pOpmetre® is a promising technique for the routine determination of vascular ageing in primary care medicine.

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

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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 m²) 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 m²) 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

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

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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.

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

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