

Pulse Wave Velocity with pOpmètre® independently correlates with glomerular filtration rate in renal transplant patients.

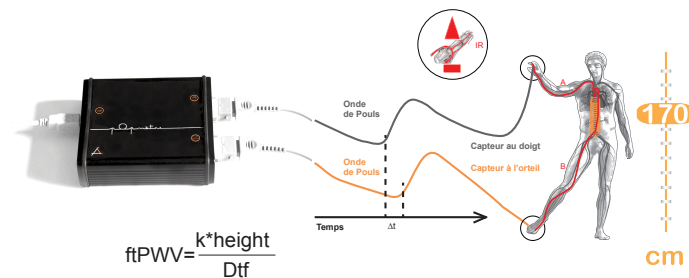
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Aim: To evaluate the relationship between glomerular filtration rate and arterial stiffness using Pulse Wave Velocity (PWV) as an independent cardiovascular risk factor in renal transplanted patients.

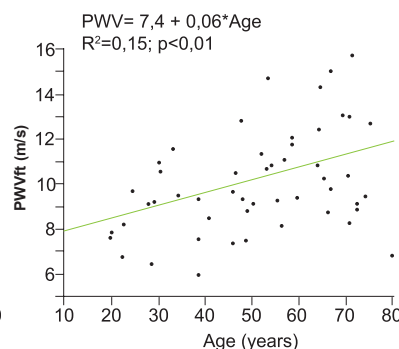
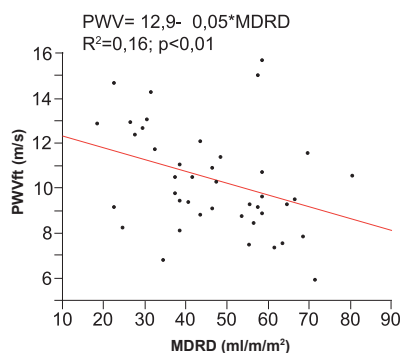
Patients and Methods: We studied 44 transplanted patients followed in our outpatient clinic. After a medical examination, we measured blood pressure **Comfort Cuff**- Skil-Care, USA-, PWVft **pOpmètre**® - Axelife sas - France- after 10 min supine resting. Three measurements were performed to study the repeatability. Estimated glomerular filtration rate (eGFR) was calculated using MDRD equation.



pOpmètre® has 2 photodiodes sensors, positioned on the finger and on the toe, next to the pulp artery, and a cardiac activity electrode. Pulse waves were recorded continuously for 20 sec, and the difference (Dtf) between the toe pulse wave transit times (PWtt) and the finger PWtt was calculated. The travel distance was based on subject's height.

Results: Forty-four (30 men, 14 women) renal transplant recipients were included. No significant difference between men and women were found in age (M±SEM: 53.2±2.2 years), systolic blood pressure (SBP: 138±2 mmHg), diastolic blood pressure (DBP: 81±2 mmHg), eGFR (45.9±2.4 ml/min/1.73 m²) and PWV (10.4±1 m/s) [range: 6.0-15.7]. Repeatability expressed as the SD/mean of 3 measurements was very good: 5.4%.

PWV correlated positively with age ($r^2=0.16$, $p<0.009$) and negatively with eGFR ($r^2=0.15$, $p<0.009$). Using a step-wise regression model (including gender, age, SBP, DBP, height, weight), only age and **pOpmètre**® PWV remained significantly associated with eGFR.



Conclusion:

Glomerular filtration rate independently correlates with PWV in renal transplant patients, supporting the hypothesis that kidney function plays a predominant role in arterial stiffness.