

# Rigidit  art rielle mesur e par pOpm tre® chez les patients   risque cardiovasculaire, lien aux plaques d'ath rome carotidien

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#### PURPOSE:

Aortic stiffness is a functional and structural consequence of ageing and arteriosclerosis. Regional arterial stiffness can be easily evaluated using pOpmetre(®) (Axelife SAS, France). This new technique assesses the pulse wave transit time (TT) between the finger (TTf) and the toe (TTt). Based on height chart, regional pulse wave velocity (PWV) between the toe and the finger can be estimated (PWVtf). pOpscore(®) index is also calculated as the ratio between PWVtoe and PWVfinger and can be considered as a peripheral vascular stiffness index. The aim of the study was to evaluate the relationship between pOpmetre(®) indices and the presence of carotid plaques in a population with cardiovascular risk factors.

#### METHODS:

In 77 consecutive patients recruited for a vascular screening for atherosclerosis (46 men aged  $54 \pm 2$  years; 31 women aged  $49 \pm 3$  years; ns), the difference between TTt and TTf (called Dt-f), the regional pulse wave velocity between the toe and the finger ( $PWVtf = \text{constant} \times \text{height}/Dt\text{-}f/\text{m}/\text{s}$ ) and pOpscore(®) were measured by pOpmetre(®). Presence of carotid plaques was assessed using ultrasound imaging. The local aortic stiffness (AoStiff) was evaluated by the Physioflow(®) system.

#### RESULTS:

No difference was found between patients with or without carotid plaques ( $n=25$  versus 52) for Ankle-Brachial Pressure Index (ABPI:  $1.15 \pm 0.04$  versus  $1.12 \pm 0.03$ ), nor for diastolic or systolic blood pressure ( $87 \pm 3$  versus  $82 \pm 2$ ;  $137 \pm 3$  versus  $132 \pm 2$  mmHg). The first group was older than the second ( $59 \pm 2$  versus  $49 \pm 2$  years,  $P<0.002$ ) with a larger intima media thickness ( $0.69 \pm 0.02$  versus  $0.63 \pm 0.01$  mm,  $P<0.004$ ), a higher AoStiff ( $10.4 \pm 0.7$  versus  $8.2 \pm 0.5$  m/s,  $P<0.02$ ), and PWVtf ( $14.3 \pm 1.0$  versus  $10.7 \pm 0.7$  m/s,  $P<0.004$ ) and a shorter Dt-f ( $57.9 \pm 5.1$  versus  $73.5 \pm 3.5$  ms,  $P<0.01$ ). PWVtf ( $r(2)=0.49$ ,  $P<0.0001$ ) and Dt-f ( $r(2)=0.54$ ,  $P<0.0001$ ) correlated with age. A significant difference in pOpscore(®) index was observed between both groups ( $1.51 \pm 0.3$  versus  $1.41 \pm 0.2$ ,  $P<0.006$ ).

#### CONCLUSION:

Our results show a significant arterial stiffness indices measured by pOpmetre(®) in patients with and without carotid plaques.

Résumé en anglais

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Titre abrégé

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