

## Carotid-femoral and Brachial-ankle Pulse Wave Velocity: Their Clinical Application

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Ultrasound examination of carotid artery, flow-mediated vasodilatation of brachial artery, pulse wave velocity (PWV) and pulse wave analysis are now available as non-invasive tools to assess vascular damage. These tools indicate different facets of pathophysiological abnormalities related with vascular damage, in some parts. PWV, which reflect arterial stiffness, is thought to be a marker of cardiovascular risk, rather than a marker of severity of atherosclerosis. In there, the assessment of central aortic stiffness is crucial. A golden standard for the assessment of this central aortic stiffness is carotid-femoral PWV (cfPWV), and several prospective studies have demonstrated that cfPWV is a useful marker to predict future cardiovascular events. PWV might be one of the first line tools for the screening atherosclerotic vascular damage. However, cfPWV is not simply enough to apply as the first line tool, because cfPWV requires good technique and the exposure of the inguinal portion for its measurement. On the contrary, while brachial-ankle PWV (baPWV) reflect stiffness of central to middle-sized arteries, it is simply enough to apply as the first line tool, because baPWV was recorded just wrapping pressure cuff at four extremities. baPWV has a close correlation with cfPWV. baPWV is related with the impairment of renal function and increased intima-media thickness of carotid artery. In addition, recent studies demonstrated that baPWV is also an indicator of the prognosis in patients with cardiovascular diseases. In this session, I will talk about the applicability of PWVs in clinical settings.