

THE CLINICAL USEFULNESS OF BRACHIAL-ANKLE PULSE WAVE VELOCITY

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Abstract

Atherosclerotic cardiovascular disease is a leading cause of death and disability in many developed countries in which ageing is a major risk of CVD. In aged societies, assessment of total vascular risk is important, because elderly peoples are usually associated with multiple risks. Pulse wave velocity (PWV) is a useful measure for the assessment of total cardiovascular risks, since it increases with advancing age, high blood pressure, hyperglycemia, renal functional decline and so on. Brachial-ankle PWV (baPWV) is a most common measure for systemic arterial stiffness routinely used in Japan. The measurement is easy, and its reproducibility is good. The generality and validity of the methodology is guaranteed. The baPWV has been reported to consistently increase with most traditional cardiovascular risk factors except dyslipidemia. Prognostic significance has been confirmed not only in Japanese but also in other Asian population. Recent individual participant data meta-analysis including 14 673 Japanese participants has shown that every 1 SD or 3.85 m/sec increase in brachial-ankle PWV was associated with 19% increase in the risk of cardiovascular disease. Moreover, simultaneous evaluation of the ankle-brachial index with baPWV, or steno-stiffness approach could allow further risk stratification of high-risk individuals. Confirmation of normal circulation is also mandatory to ensure the validity of PWV measurement in the target arterial territory. In this lecture, the clinical usefulness of the baPWV will be overviewed according to the latest evidence.

Keywords

Brachial-ankle PWV, Cardiovascular disease, Steno-stiffness approach,