

Pulse wave research in Japan, 2009-2010

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The increasing number of recent studies by Japanese investigators have reported the association between advanced arterial stiffness and various target organ damages including brain, heart and kidney.. Among a number of indices of arterial stiffness, brachial-ankle pulse wave velocity (baPWV) and augmentation index (AI) have been frequently investigated in the studies of various fields. More recently, second peak radial systolic BP (SBP2) and pulse pressure (PP2) were used as estimates of central blood pressure (CBP). CBP has been reported to be superior to brachial blood pressure as a cardiovascular risk predictor in hypertensive patients. On the other hand, the clinical value of baPWV and SBP2 has been tested in comparison with the conventional carotid-femoral pulse wave velocity (cfPWV) and the other methods to estimate CBP including the one utilizing transfer function. Currently, investigators' interests have been focused on, the effects of different classes of antihypertensive drugs on CBP.

Nationwide cross-sectional studies (ABC-J) enrolling 1727 hypertensive subjects and 848 non-hypertensive participants have been performed to characterize all classes of antihypertensive drugs in relation to CBP. This study suggests that vasodilatory antihypertensive drugs lower CBP independently of peripheral BP levels, whereas non-vasodilators such as β -blockers and diuretics may raise CBP. The prospective follow-up study (ABC-J follow-up study) to examine the relation of SBP2 represented as CBP with future cardiovascular events has just started.