Follow-up of Patients after Coronary Intervention by Non-stress Echocardiography

－Detection of ≥75% Coronary Artery Stenosis with Strain Rate Function－

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Abstract

Background: In combination with coronary angiography(CAG), Stress echocardiography is the one of the screening methods to detect coronary artery stenosis after percutaneous coronary intervention(PCI), although a non-stress method is desirable from the standpoint of patients burden and time-consuming at out-patient clinic. Toward that end, the potential of non-stress echocardiography with strain rate (SR) analysis was examined.

Method: The apical views of the left ventricular wall motion were evaluated by longitudinal two-dimensional (2D) SR to yield four parameters: 100- and 200-msec SR values, and minimum SR values between 100- to 200-msec and mean SR values during 100- to 200-msec. Diagnostic accuracy with these parameters for coronary artery stenosis was assessed by determining the coefficients of discriminant function that best predicts an independent diagnosis.

Results: The following discriminant function yields 86.39% probability of diagnosis of ≧75% stenosis of coronary artery when discriminant score Z > 0: Z = 4.91 + 1.02 × (100-msec SR value) + 1.23 × (200-msec SR value) – 0.46 × (minimum SR value) + 4.83 × (mean SR value).

Conclusion: Thus, 2D SR analysis of resting apical views with discriminant function is as diagnostically accurate for coronary artery stenosis as stress echocardiography. By non-stress echocardiography in combination with CAG, it is possible enough to follow-up patients more frequently and precisely after PCI.

Key words: Follow-up of post-coronary intervention patients, Strain rate discriminant function of non-stressed echocardiography, Combination method of strain rate function and coronary angiography