

Analysis of Parameters related to Baseline Coronary Flow Velocity and Coronary Flow Reserve in Subjects with Chest Pain and Normal Coronary Angiogram

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Objectives : Many of the patients showing no evidence of atherosclerotic narrowing in coronary angiogram complain chest pain and the management of these patients is troublesome for many cardiologists. The aim of this study was to analyze the parameters related to baseline coronary flow velocity (CFV) and coronary flow reserve (CFR) using transthoracic Doppler echocardiography (TTE) in these subjects. **Methods :** 354 subjects (mean age: 55 \pm 11 years, M:F ratio = 186:168) with angina or angina-like chest pain and a normal coronary arteriogram were enrolled. CFR using TTE and adenosine or dipyridamole was measured within two weeks after coronary angiogram. We analyzed the clinical, electrocardiographic, echocardiographic and laboratory parameters in these subjects. **Results :** 1. There was an inverted correlation between baseline CFV and CFR ($r = -.374$, $p < .001$). 2. The baseline CFV was closely related to LV mass index (LVMI, $r = .149$, $p = .011$), fasting blood sugar level(FBS; $r = .237$, $p < .001$) and LVH criteria on ECG (18.4 \pm 9 vs 21.7 \pm 10, $p = .002$), respectively. 3. The baseline CFV on highest 75% quartile (23.2 \pm 3.2 cm/s) was closely related to LVH criteria on ECG (odds ratio: 2.960 [95% confidence interval: 1.642 ~ 5.334], $p < .001$) in multivariate analysis. 4. CFR was closely related to age ($r = -.173$, $p = .003$), LVMI ($r = -.186$, $p = .005$), HDL ($r = .169$, $p = .005$), and LVH criteria on ECG (2.79 \pm .87 vs 2.44 \pm .83, $p = .002$), respectively. 5. In multivariate analysis the independent factors related to CFR < 2.0 were LVH criteria on ECG (odds ratio: 2.200 [95% confidence interval: 1.041 ~ 4.648], $p = 0.039$) and HDL level (odds ratio: 1.037 [95% confidence interval: 1.004 ~ 1.072], $p = 0.028$). **Conclusions :** Our results show there are many factors relating CFV and CFR. Among these factors the baseline CFV is the important factor determining CFR and CFR < 2.0 suggesting ischemic range is closely related to LVH and HDL level in subjects with chest pain and normal coronary angiogram.

Differentiation of Ischemic and Nonischemic Cardiomyopathy Using Two-dimensional Longitudinal Strain imaging

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Background : The differentiation of ischemic (ICM) and nonischemic cardiomyopathy (NICM) has significant clinical implications. According to a recent study, 2-dimensional (2D) strain have shown good accuracy for the detection of regional wall motion. This study sought to distinguish NICM from ICM by assessment of long axis function of the left ventricle using 2D strain. **Methods :** Longitudinal strains by 2D speckle-tracking echocardiography were obtained from 31 patients (EF \leq 50%, ICM=16, NICM=15). We analyzed with strain parameters such as global value [average value of all strains in each left ventricular segments], peak negative strain value of the segment with maximal negative value (Sh), peak negative strain value of the segment with minimal negative value (Sl), Difference between Sh and Sl [Sh-Sl], mean absolute deviation (MAD) of all segments. **Results :** In both groups, there were no difference in age, EF, LV dimension, and wall motion score index. 2D-strain parameters between ICM and NICM were listed in table. In subgroup analysis among patients with EF \leq 30%, there were no significant differences in all 2D-strain parameters. However, ICM showed increased trends in MAD and [Sh-Sl] compared with NICM (3.69 \pm 0.62 vs 2.89 \pm 0.97, $p=0.093$; 15.17 \pm 3.60 vs 12.17 \pm 4.14, $p=0.093$). **Conclusions :** The assessment of long axis function using 2D strain may be a promising tool for the differentiation between ICM and NICM. Keywords ischemic cardiomyopathy, nonischemic cardiomyopathy, 2D strain

	NICM	ICM	p value
Global strain	-13 \pm 3.93	-10.66 \pm 2.19	0.079
MAD	2.60 \pm 0.80	3.84 \pm 0.60	0.000
Sh	-19.13 \pm 4.10	-20.50 \pm 3.52	0.299
Sl	-7.87 \pm 4.53	-4.06 \pm 2.17	0.037
Sh-Sl	11.27 \pm 3.327	16.44 \pm 4.08	0.001