NEW STRATEGY OF MEDICAL THERAPY TO LEFT VENTRICULAR DYSFUNCTION WITHOUT SIGNIFICANT CORONARY STENOSIS BY USING ACETYLCOLINE PROVOCATION

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Background & Methods: To evaluate the causes of severely depressed left ventricular (LV) function without coronary stenosis, we performed acetylcholine (ACh) provocative coronary angiography (CAG) in consecutive 32 patients with severely depressed LV function and normal CAG.

Results: In either patient with positive ACh-test (n=13) or with negative ACh-test (n=19), LV function was severely depressed (LVEF: 32 vs. 37%, ns; BNP: 903 vs. 580; ns). In all of patients with positive ACh-test, ACh-CAG showed multi-vessel diffuse coronary spasm with remarkable ECG changes. Among positive ACh-test group, all of three LV biopsy specimens were negative, and only one of 10 cases (10%) showed an abnormal MRI delayed enhancement (DE). On the other hand, among the negative ACh-test group, LV biopsy in 2 of 3 cases and MRI-DE findings in 5 of 10 cases showed more frequently abnormal findings compatible with cardiomyopathy than among the positive ACh-test group (60%, vs. 10%, p<0.05). Among the positive ACh-test group, depressed LV function improved after starting Ca antagonist during 3 months (LVEF: 32±12% to 49±13%, p<0.01; BNP: 903±565 to 80±40, p<0.01), however, among the negative ACh-test group, depressed LV improved under treatment of ß antagonist during 8 months (LVEF: 37±11% to 44±11%, p<0.01; BNP: 580±470 to 144±149, p<0.01).

Conclusions: In 40% of the patients with severely depressed LV function without coronary stenosis, multi-vessel coronary spasms were induced in ACh provocative CAG. In these patients, the depressed LV function improved under the treatment of Ca antagonist, not ß antagonist. We might differentiate the patients and choose the appropriate strategy for the patients with severely depressed LV function and normal CAG by ACh-provocative CAG.