ORIGINAL ARTICLE

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Assessment of *Takotsubo* (ampulla) cardiomyopathy using ^{99m}Tc-tetrofosmin myocardial SPECT —Comparison with acute coronary syndrome—

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We assessed *Takotsubo* (ampulla) cardiomyopathy compared with acute coronary syndrome (ACS) using two-dimensional echocardiography and ^{99m}Tc-tetrofosmin myocardial SPECT. ***Methods:*** We examined 10 patients with *Takotsubo* cardiomyopathy and 16 with ACS at the time of emergency admission (acute phase), at three to nine days after the attack (subacute phase) and at one month after the attack (chronic phase). The left ventricle was divided into nine regions on echocardiograms and SPECT images, and the degree of abnormalities in each region was scored in five grades from normal (0) to severely abnormal (4). ***Results:*** Coronary angiography revealed total or subtotal occlusion in patients with ACS but no stenotic legions in those with *Takotsubo* cardiomyopathy. The amount of ST segment elevation (mm) was 7.9 ± 3.4 in patients with *Takotsubo* cardiomyopathy and 7.3 ± 3.7 in those with ACS (N.S.). Abnormal wall motion scores on echocardiograms were 13.8 ± 4.4, 4.4 ± 3.8 and 1.8 ± 2.3 during the acute, subacute and chronic phases in patients with *Takotsubo* cardiomyopathy, and 13.9 ± 4.0, 11.7 ± 3.7, 7.6 ± 4.2, respectively in patients with ACS. The value of MB fraction of creatine phosphokinase (IU/*l*) was 34 ± 23 in patients with *Takotsubo* cardiomyopathy and 326 ± 98 in those with ACS ($p < 0.001$). Abnormal myocardial perfusion scores on ^{99m}Tc-tetrofosmin myocardial SPECT were 11.4 ± 3.2, 3.2 ± 3.3 and 0.7 ± 1.1 during the acute, subacute and chronic phases respectively, in patients with *Takotsubo* cardiomyopathy, and 15.8 ± 4.1, 13.5 ± 4.4, 8.2 ± 4.4, respectively, in those with ACS. The numbers of myocardial segments that did not uptake ^{99m}Tc-tetrofosmin during the acute phase were 0.5 ± 0.8 and 3.6 ± 2.8 in patients with *Takotsubo* cardiomyopathy and ACS, respectively. ***Conclusion:*** Impaired coronary microcirculation might be a causative mechanism of *Takotsubo* cardiomyopathy.

Key words: *Takotsubo* cardiomyopathy, ampulla cardiomyopathy, ^{99m}Tc-tetrofosmin, microcirculation