

## Assessment of ampulla (*Takotsubo*) cardiomyopathy with coronary angiography, two-dimensional echocardiography and $^{99m}\text{Tc}$ -tetrofosmin myocardial single photon emission computed tomography

Kazuki ITO,\* Hiroki SUGIHARA,\*\* Tatsuya KAWASAKI,\*\* Tatsuya YUBA,\*  
Tomoki DOUE,\* Takuji TANABE,\* Yoshihiko ADACHI,\* Shuji KATOH,\*  
Akihiro AZUMA\*\* and Masao NAKAGAWA\*\*

\*Division of Cardiology, Murakami Memorial Hospital, Asahi University

\*\*Second Department of Medicine, Kyoto Prefectural University of Medicine

We studied the causative mechanism of ampulla (*Takotsubo*) cardiomyopathy. **Methods:** We examined 7 patients with ampulla cardiomyopathy by means of coronary angiography, two-dimensional echocardiography and  $^{99m}\text{Tc}$ -tetrofosmin myocardial SPECT at the time of emergency admission (acute phase), at 3 to 5 days after the attack (subacute phase) and at 1 month after the attack (chronic phase). The left ventricle was divided into 9 regions on two-dimensional echocardiograms and  $^{99m}\text{Tc}$ -tetrofosmin myocardial SPECT images, then the degree of abnormalities in each region was scored in four grades from normal (0) to severely abnormal (3). We injected nicorandil into the coronary arteries and determined the elevation in the ST segment before and after administration. **Results:** Coronary angiography did not show stenotic lesions in any patient. The acute, subacute and chronic phase myocardial perfusion scores on  $^{99m}\text{Tc}$ -tetrofosmin myocardial SPECT were  $11.2 \pm 3.4$ ,  $2.7 \pm 2.3$  and  $0.4 \pm 0.5$ , respectively, and wall motion scores on echocardiograms were  $13.0 \pm 3.6$ ,  $4.4 \pm 2.2$  and  $0.6 \pm 0.6$ , respectively, indicating improvement in all scores during the subacute phase ( $p < 0.01$ ). The elevation in the ST segment (mm) on the electrocardiogram was improved from  $8.3 \pm 2.7$  to  $4.9 \pm 1.9$  after the administration of nicorandil ( $p < 0.05$ ). **Conclusion:** These findings indicated that coronary microvascular spasm is one causative mechanism of ampulla cardiomyopathy.

**Key words:** ampulla (*Takotsubo*) cardiomyopathy, microvascular spasm, nicorandil,  $^{99m}\text{Tc}$ -tetrofosmin