Nuclear Imaging Studies of the Typical Form of Takotsubo Cardiomyopathy at Different Time Points of Disease.

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BACKGROUND: Takotsubo cardiomyopathy is characterized by a reversible regional, typically apical, systolic dysfunction. Previous single photon emission computed tomography (SPECT) studies conducted in small cohorts reported a characteristic time course related findings, ranging from fixed, large perfusion defects at the acute phase, to nearly normal or normal appearing studies during the recovery phase.

OBJECTIVE: To describe the nuclear imaging findings at different time points of the disease of patients diagnosed with Takotsubo cardiomyopathy during the years 2004-2009.

METHODS: Forty two consecutive patients were diagnosed with Takotsubo cardiomyopathy due to the presence of chest pain during either emotional or physical stress, ST segment changes, suggestive echocardiographic findings, elevated Troponin I levels and coronary angiography with narrowing of <50% of the epicardial coronary arteries. Twelve of these patients (28%) (mean age 61.8 years, range 50-84 years, 91% female) underwent a rest/redistribution Thallium-201 SPECT imaging. The SPECT studies were conducted at different time points, ranging from 3 to 14 days from pain onset (mean 7.1 days).

RESULTS: In 8 out of 12 patients, (66%) SPECT imaging was performed during the acute and sub-acute phases, 2 to 7 days, (mean 4.6 days) from symptom onset and demonstrated a fixed perfusion defect, ranging from small to large in size. Their mean left ventricular ejection fraction (LVEF) was 31%. In the remaining 4 patients, the SPECT imaging was performed at a later time period (12 to 14 days, mean 13 days from symptom onset) and showed a normal perfusion scan in all. The mean LVEF at that time period was 57.2%.

CONCLUSIONS: SPECT perfusion studies of patients with Takotsubo cardiomyopathy obtained at different time points from symptom onset demonstrate a typical pattern which is in accordance with previous reports and with the clinical and echocardiographic findings of these patients.