

## Summary

### Rest Delayed Images on $^{99m}\text{Tc}$ -MIBI Myocardial SPECT as a Noninvasive Screen for the Diagnosis of Vasospastic Angina Pectoris

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Diagnostic usefulness of  $^{99m}\text{Tc}$ -MIBI myocardial SPECT at rest was examined in 39 cases of coronary vasospastic angina pectoris who were diagnosed by a positive reaction to ergonovine provocation. SPECT was performed 45 minutes (early image) and 3 hours (delayed image) after the intravenous injection of approximately 600 MBq of MIBI. Decrease in accumulation was ranked by four defect scores (0: normal; 1: slight decrease; 2: moderate decrease; 3: severe decrease) and the total defect score was evaluated semiquantitatively. The washout rate between the normal area and the spasm area was also evaluated quantitatively using bull's eye. As a result, 15 cases (15/39; 38.4%) showed decreased accumulation in the early image and 27 cases (27/39; 69.2%) showed decreased accumulation in the delayed image. All of the cases which showed decreased accumulation in the early image had decreased accumulation in the delayed image as well. In 6 cases (6/34; 17.6%) showed ST wave changes during exercise ECG and 16 cases (16/34; 47%) showed decreased accumulation in the exercise myocardial SPECT. The washout rate of MIBI

in the decreased accumulation area was significantly higher than that of the normal area. Of 32 ergonovine induced vasospastic area, 23 areas (72%) exhibited decreased accumulation in the delayed image for the same area. Decreased accumulation in the delayed image in MIBI was due to the enhanced washout, which, in turn, indicated declined retention of MIBI by mitochondrial membrane. In coronary vasospastic angina pectoris, spasm induced ischemia was thought to have an effect on the mitochondria. This study suggested that even with a normal exercise ECG and exercise myocardial SPECT, there's a strong possibility of coronary vasospastic angina pectoris if a decreased accumulation was found in the delayed image in the MIBI myocardial SPECT at rest. Hence, in diagnosing coronary vasospastic angina pectoris, the delayed image in the MIBI myocardial SPECT at rest was believed to be useful.

**Key words:**  $^{99m}\text{Tc}$ -hexakis-2-methoxyisobutyl isonitrile, Washout, Vasospastic angina, SPECT, Myocardium.