

## Inter-test Variability of Tc-99m sestamibi Myocardial Perfusion Scintigraphy with Intravenous Adenosine

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**Background and Purpose:** Myocardial perfusion SPECT with pharmacologic vasodilation is commonly utilized to initially assess and sequentially follow the success of various therapeutic regimens in patients with coronary artery disease unable to exercise. Despite widespread use of myocardial perfusion SPECT in conjunction with vasodilator in clinical decision making, there are few data defining the reproducibility of serial tomographic imaging in individual patients. The purpose of this study was to determine the reproducibility of sequential adenosine Tc-99m MIBI SPECT.

**Methods:** Fourteen CAD patients(7 male, mean age 61-yr) in stable condition underwent two sequential Tc-99m MIBI SPECT with the same protocol using intravenous adenosine. Acquisition and processing protocols were the same for each test and mean interval between two tests was 2.4 days (2-5 days). All patients had a baseline tomographic perfusion defect involving more than 5% of the CE map of left ventricle after intravenous adenosine. Myocardial uptake of tracer was visually assessed from 18 segments of left ventricular tomographic slices and graded by 4 score system(0 to 3). The extent and severity scores of perfusion defect were quantitatively compared.

**Results:** No significant differences in hemodynamic parameters were observed from each study. Side effects profile were not different between the two. All patients had an abnormal repeat perfusion scan. The exact agreement rate of perfusion degree was 74%(186 of 252 segments) in visual assessment of tomographic slices. The extent and severity scores of perfusion defect were not different between two studies(extent of study one =  $19.14 \pm 11.37$ , two =  $19.07 \pm 10.97$ , P:NS, severity score of study one =  $595.92 \pm 552.42$ , two =  $522.28 \pm 396.18$ , P:NS).

**Conclusion:** Tc-99m MIBI SPECT with intravenous adenosine is highly reproducible and can be used to accurately interpret temporal changes in myocardial perfusion in individual patients.