

## Pharmacologic Stress-induced Stunning: Evaluation with Quantitative Gated SPECT

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**Objectives:** The after-effect of pharmacologic stress (adenosine) on left ventricular (LV) function, end-diastolic volume (EDV), end-systolic volume (ESV) and ejection fraction (LVEF) were evaluated after pharmacologic stress with Tl-201 and  $^{99m}\text{Tc}$ -MIBI SPECT using an automated program in 153 subjects. **Methods:** The subjects were grouped as follows: 1) Tl-201 group (n=35, male 18, female 17, mean age: 58years); normal scan (n=24), ischemia (n=8) and infarction (n=3). 2)  $^{99m}\text{Tc}$ -MIBI group (n=118, male 60, female 58, mean age: 62years); normal scan (n=73), ischemia (n=20) and infarction (n=25) based on the interpretation of perfusion images. All patients were in sinus rhythm during the study. **Results:** 1) Tl-201 group; In patients with ischemia (the mean time interval between injection and acquisition is 12.3 min), post-stress LVEF was significantly depressed after adenosine infusion ( $51.2 \pm 6.3\%$  vs  $59.8 \pm 8.2\%$ ,  $p < 0.01$ ) and the mean difference in LVEF ( $\Delta\text{LVEF}$ ) between rest and stress was 8.6%. Seven patients (88%) showed an increase in LVEF greater than 5% from poststress to rest. The  $\Delta\text{LVEF}$  in the ischemic group was significantly larger than that in the normal scan ( $p < 0.05$ ) or infarction group ( $p < 0.05$ ). 2)  $^{99m}\text{Tc}$ -MIBI group; In patients with ischemia (the mean time interval between injection and acquisition is 80 min), post-stress LVEF was significantly depressed after adenosine infusion ( $p < 0.001$ ) and  $\Delta\text{LVEF}$  was 5.1%. Eight patients (40%) showed an increase in LVEF greater than 5% from poststress to rest. Poststress ESV ( $37.1 \pm 17.3$  ml) was significantly higher than ESV ( $31.3 \pm 15.5$  ml,  $p < 0.001$ ) at rest, but no significant difference in EDV. **Conclusion:** These results showed that pharmacologic stress induced stunning is well noted in the early quantitative gated SPECT in ischemic patients and also observed in the delayed gated SPECT, even though the rate of stunning is less than the early SPECT.