

## Summary

### Clinical Significance of Exercise-Induced ST Segment Depression in Patients with Lateral Myocardial Infarction Involving the Left Circumflex Artery: Evaluation by Exercise $^{99m}\text{Tc}$ -MIBI Myocardial Scintigraphy

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**[Purpose]** The aim of this study is to clarify the causes of exercise-induced ST-segment depression in patients with broad lateral old myocardial infarction involving LCX (LCX-OMI) without ischemia on exercise scintigraphy.

**[Method]** Twenty one patients (M/F = 11/10, age =  $62 \pm 19$  years) with myocardial infarction involving LCX (LCX-MI), but without fill-in on exercise and rest MIBI quantitative gated SPECT (QGS), were selected. They were divided into two groups of Group ST(+) (n = 11, with significant ST depression (max -  $2.8 \pm 0.4$  mm), Group ST(-) (n = 10) without ST depression. On 20 SPECT segments of both exercise and rest SPECT, we scored uptake score as DS (0 = normal to 3 = defect) and wall motion as WMS (0 = normal to - 5 = dyskinesis) and summed DS (TDS) and WMS (TWMS) in LCX region, furthermore, calculated the difference of TWMS ( $\Delta\text{TWMS}$  {exercise

- rest}), end diastolic volume (EDV) and ejection fraction (EF) during exercise were compared between the two groups.

**[Result]** Group ST(+) showed significantly ( $p < 0.01$ ) lower EF ( $35.4 \pm 9.2\%$  vs.  $60.2 \pm 6.2\%$ ), larger EDV ( $146 \pm 53$  ml vs.  $93 \pm 15$  ml), higher TDS ( $5$  vs.  $7 \pm 3$ ), lower TWMS (-  $25 \pm 9$  vs. -  $6 \pm 5$ ), furthermore lower  $\Delta\text{TWMS}$  (-  $6.9 \pm 4.0$  vs. -  $2.0 \pm 0.8$ ) than Group ST(-).

**[Conclusion]** Exercise-induced significant ST depression in  $V_{2-4}$  without ischemia in LCX-MI was observed in patients with broad LCX-MI, low EF, and was related to impaired wall motion in LCX region. ST depression in  $V_{2-4}$  was considered to appear as mirror image of ST elevation at postero-inferior wall due to disturbed wall motion on exercise.

**Key words:** Disturbance of wall motion, Exercise induce ST-depression, Gate SPECT.