

**Quantitative analysis of myocardial ischemia
by technetium-99m sestamibi exercise scintigraphy:
A new method for change rate mapping**

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In order to quantitatively assess the extent and severity of myocardial ischemia by Tc-99m sestamibi exercise myocardial scintigraphy, we developed a new method of change rate (CR) mapping and examined its efficiency. CR was calculated to divide the counts per pixel in the stress polar map by that in the rest polar map at each corresponding pixel. The CR map showed the CR values at each pixel. To correct the differences between the stress and rest images for the dose of Tc-99m sestamibi administered, the mean counts per pixel in the stress polar map and the rest map were adjusted to the same level. Regarding the regions in which the CR value was less than 1 as ischemia, we compared the abilities of the CR map and the polar map to detect coronary artery stenosis in 5 patients with angina pectoris. The sensitivity for coronary artery stenosis was 80% in the CR map, and 40% in the polar map. The specificity for both was 75%. We concluded that the CR map was effective in assessing the extent and severity of myocardial ischemia in Tc-99m sestamibi exercise myocardial scintigraphy.

Key words: technetium-99m sestamibi, myocardial SPECT, change rate, polar map