

## Assessment of area at risk and efficacy of treatment in patients with acute coronary syndrome using $^{99m}\text{Tc}$ tetrofosmin imaging in humans

Hitoshi MATSUO,\* Sachiro WATANABE,\* Yoshio NISHIDA,\* Tetsuo MATSUBARA,\*  
Motoo KANO,\* Akira SUGIYAMA,\* Yukihiko MATSUNO,\* Hiroshi ODA,\*  
Yasunori KOTO,\* Hiroshige OOHASHI\* Akira GOTO,\*\* Kazunari MAKITA,\*\*  
Hiroshi WATANABE,\*\* Taketoshi MIZUTANI,\*\* Hiroshi MIYAKE\*\*  
and Takeyoshi IMAEDA\*\*\*

\**Division of Cardiology and Nephrology, Department of Internal Medicine*

\*\**Department of Radiology, Gifu Prefectural Hospital*

\*\*\**Department of Radiology, Gifu University, School of Medicine*

The determination of the myocardium at risk before intervention and the change in that region after intervention constitute a promising measurement tool for the assessment of acute therapy. A new  $^{99m}\text{Tc}$  labeled myocardial blood flow tracer,  $^{99m}\text{Tc}$  tetrofosmin, is expected to enable the evaluation of myocardium at risk because of the absence of redistribution. This preliminary study was performed in 9 patients with acute coronary syndrome (4 unstable angina and 5 acute myocardial infarction) to investigate whether recovery of perfusion by tetrofosmin imaging parallels mechanical improvement. Tetrofosmin imaging was performed acutely and 3–30 days later. Visual analysis of defect severity was assessed in both studies. Segments with improvement in perfusion were accompanied by significant wall motion recovery compared with normal and unimproved segments ( $\Delta$  WMI: normal segments  $0.40 \pm 0.67$ , improved segments  $1.79 \pm 0.68$ , unimproved segments  $-0.15 \pm 0.16$ ,  $p < 0.01$  for improved segments compared with other groups), suggesting the efficacy of this tracer for the assessment of the acute therapy. These data suggest that  $^{99m}\text{Tc}$  tetrofosmin imaging is a useful method for the assessment of the myocardial area at risk and the efficacy of acute therapy in acute myocardial infarction and unstable angina.

**Key words:**  $^{99m}\text{Tc}$  tetrofosmin, acute myocardial infarction, unstable angina, area at risk, PTCA