

## Combined study with I-123 fatty acid and thallium-201 to assess ischemic myocardium: Comparison with thallium redistribution and glucose metabolism

Masahide KAWAMOTO,\* Nagara TAMAKI,\* Yoshiharu YONEKURA,\* Eiji TADAMURA,\* Yasuhisa FUJIBAYASHI,\*  
Yasuhiro MAGATA,\* Ryuji NOHARA,\*\* Shigetake SASAYAMA,\*\* Katsuji IKEKUBO,\*\*\*  
Hiroshi KATO\*\*\* and Junji KONISHI\*

*\*Department of Nuclear Medicine, \*\*Third Division, Department of Internal Medicine,  
Kyoto University Faculty of Medicine  
\*\*\*Kobe General Hospital*

To assess the clinical value of combined SPECT imaging with I-123-15-(p-iodophenyl)-3-methyl pentadecanoic acid (BMIPP) and thallium-201 (Tl), the findings were compared with those obtained in a stress Tl study and positron emission tomography (PET) with fluorine-18-fluorodeoxyglucose (FDG) in 22 patients with myocardial infarction.

In 20 patients who underwent a stress Tl study, among 75 hypoperfused segments, 27 segments exhibited less BMIPP uptake than Tl (discordant segments), and the remaining 48 segments showed a similar decrease in BMIPP uptake (concordant segments). Twenty-two of 27 discordant segments (81%) exhibited redistribution on stress Tl study. On the other hand, only one of the 48 concordant segments had redistribution ( $p < 0.001$ ).

In 10 patients who underwent a FDG PET study, among 33 hypoperfused segments, seven segments were discordant segments, and the remaining 25 segments were concordant segments. Seven of the eight discordant segments (88%) demonstrated an increase in FDG uptake. In contrast, only five of 25 concordant segments (20%) showed increase in FDG uptake ( $p < 0.01$ ).

Thus, the segments showing discordant BMIPP uptake are considered to be ischemic but viable myocardium. We conclude that combined imaging with BMIPP and Tl is a useful mean for evaluating tissue viability in patients with coronary artery disease, but it may underestimate the extent of tissue viability, compared with FDG PET imaging.

**Key words:** single photon emission computed tomography, I-123 BMIPP, thallium-201, myocardial infarction, fluorine-18-fluorodeoxyglucose