

Detection of coronary artery disease by iodine-123-labeled iodophenyl-9-methyl pentadecanoic acid SPECT: Comparison with thallium-201 and iodine-123 BMIPP SPECT

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To evaluate the ability to detect coronary artery disease (CAD) with a new iodine-123 labeled branched fatty acid analog, iodophenyl-9-methyl pentadecanoic acid (9MPA), we performed 9MPA, iodine-123 BMIPP and thallium-201 SPECT in patients with CAD. Twenty-four patients (11 with effort angina and 13 with myocardial infarction) were studied. In all patients, 9MPA SPECT was obtained at 15 min after injection. Twenty-three patients underwent stress-redistribution ^{201}Tl SPECT and 9 patients also underwent BMIPP myocardial fatty acid imaging. The regional uptakes of 9MPA, BMIPP and ^{201}Tl were scored semiquantitatively and the segmental agreements were compared among them. In the segment-to-segment comparison, 9MPA showed reduced activity in comparison to stress-redistribution ^{201}Tl imaging. The defect score of 9MPA was significantly greater than that of redistribution ^{201}Tl images ($p < 0.001$). In addition, segmental 9MPA uptake was lower than BMIPP and its defect score was significantly greater than that of BMIPP ($p < 0.05$). When coronary angiography was used as the criterion, 9MPA showed higher sensitivity and lower specificity than stress-redistribution ^{201}Tl ($p < 0.01$). In conclusion, fatty acid metabolic imaging with 9MPA is a sensitive but nonspecific detector of CAD.

Key words: iodine-123-iodophenyl-9-methyl pentadecanoic acid, coronary artery disease, thallium-201, iodine-123 BMIPP.