

Dual radionuclide single-photon emission computed tomography in the prediction of further ischemic risk after acute myocardial infarction

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To evaluate whether the findings of dual single-photon emission computed tomography (SPECT) with technetium-99m pyrophosphate (Tc-99m PPI) and thallium-201 were predictive of further cardiac events in their hospital course, we studied 130 patients recovering from acute myocardial infarction (AMI). Fifty-four patients showed overlapping of Tc-99m PPI and thallium-201 in the same location (overlap positive group), and 76 patients had no overlap (overlap negative group). Of the 130 patients, 36 (28%) had a cardiac event. In patients in the overlap positive group, the incidence of subsequent events was significantly higher than in patients in the overlap negative group (44% versus 16%; $p < 0.001$). In the overlap positive group, the Tc-99m PPI uptake score and the number of overlap segments in patients with further events was significantly higher than those in patients without further events (10.2 ± 5.1 versus 6.4 ± 4.1 , $p < 0.005$ and 5.2 ± 2.0 versus 3.3 ± 1.3 , $p < 0.001$, respectively). These results suggest that patients who have a Tc-99m PPI and thallium-201 overlap negative scan can be candidates for early hospital discharge. In contrast, patients who have a greater number of overlap segments may require early catheterization and revascularization, so that simultaneous SPECT imaging Tc-99m PPI and thallium-201 might be useful for identifying patients with further ischemic risk after AMI in their hospital course.

Key words: technetium-99m pyrophosphate/thallium-201 scintigraphy, cardiac events, acute myocardial infarction, overlap