ORIGINAL ARTICLE

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Assessment of myocardial viability in patients with myocardial infarction using twenty-four hour thallium-201 late redistribution imaging

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Background: Rest thallium-201 (^{201}Tl) myocardial perfusion imaging has been widely used for evaluation of myocardial ischemia/viability after myocardial infarction, but the ideal timing for imaging after injection to maximally estimate viability is not well established. ***Methods:*** Thirty-six patients with myocardial infarction underwent the initial, 3 h, and 24 h redistribution imaging after intravenous injection of 148–185 MBq ^{201}Tl. The initial and 3 h images, the initial and 24 h images, and the 3 and 24 h images were compared double-blinded. ***Results:*** Out of the 184 abnormal segments based on the initial imaging, 56 (30%) segments improved by at least 1 grade on the 3 h imaging while 78 (42%) segments improved by at least 1 grade on the 24 h imaging. The 24 h late imaging detected more viable myocardium than the 3 h imaging did, with a significant difference ($\chi^2 = 5.680$, $p = 0.017$). There were 158 abnormal segments on the 3 h imaging, with average 28% (44) segments improved by at least 1 grade on the 24 h imaging. There were 128 initial abnormal segments with no improvement on the 3 h imaging. Out of these segments, the 24 h late redistribution imaging detected additional redistribution in 26 segments, taking up 20%. ***Conclusions:*** Twenty-four hour late ^{201}Tl imaging will demonstrated additional redistribution in patients who have incompletely reversible defects on early redistribution imaging at 3h.

Key words: thallium-201, coronary artery disease, myocardial viability