

Increase in serum cardiac myosin light chain I associated with elective percutaneous transluminal coronary angioplasty in patients with ischemic heart disease

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Changes in serum myosin light chain I (MLCI) due to elective percutaneous transluminal coronary angioplasty (PTCA) were studied after PTCA (0, 8 and 48 hours) in 57 patients with old myocardial infarction (MI group) and 20 patients with angina pectoris (AP group). The AP group showed no increase after PTCA. In contrast, in the MI group there were 16 patients in whom MLCI at 48 hours was increased by 1.0 ng/ml or more (MI₁ group) and another group of 41 patients who showed no increase in MLCI (MI₂ group). The MI₁ group had a significantly higher incidence of (1) non-Q wave myocardial infarction (62.5% vs. 17.1%, $p < 0.01$), (2) 99% stenosis of a coronary artery (50.0% vs. 12.2%, $p < 0.01$), and (3) redistribution in a hypoperfusion area found in the delayed image of resting thallium-201 (²⁰¹Tl) myocardial scintigraphy (85.7% vs. 15.8%, $p < 0.01$). The left ventricular ejection fraction (LVEF) was significantly improved in the MI₁ group, 3 to 4 months later (from 0.49 ± 0.12 to 0.58 ± 0.11 , $p < 0.01$), in contrast to the patient of MI₂ group who did not show any improvement. The AP group was not considered to have a bulk of myocardium impaired enough to show a release of MLCI due to PTCA-associated transient coronary occlusion. In the MI₁ group, however, MLCI was probably released from the chronically underperfused, but still salvageable, portion of the myocardium. This is consistent with the improvement in LVEF observed 3 to 4 months after the relief of severe coronary stenosis. These findings suggest that the MI₁ group had a large amount of "hibernating myocardium."

Key words: myosin light chain I, PTCA, hibernating myocardium