

Abstract

Background: Malondialdehyde-modified low-density lipoprotein (MDA-LDL) is a predictive marker of cardiovascular events in patients with stable angina pectoris. However, little is known about this marker in patients with acute coronary syndrome (ACS). We investigated the prognostic relevance of MDA-LDL to cardiovascular outcomes in patients with ACS.

Methods: A total of 370 consecutive patients with ACS who underwent primary percutaneous coronary intervention (PCI) were enrolled from October 2009 to September 2014 at Mitoyo General Hospital. Serum MDA-LDL levels were examined at admission. The patients were divided into three groups according to tertile value of serum MDA-LDL levels. The primary outcomes were cardiovascular death, non-fatal myocardial infarction, non-fatal stroke, revascularization, and heart failure requiring hospital admission.

Results: MDA-LDL levels in patients with acute myocardial infarction were significantly greater than those in patients with unstable angina pectoris (mean \pm standard deviation: 133 ± 48 U/L vs 157 ± 69 U/L, $p=0.001$). During follow-up (472 [195–920] days), 82 (22%) events occurred. Kaplan–Meier analysis showed that patients in the highest MDA-LDL tertile had the worst prognosis (log-rank, $p<0.001$). Cox regression analysis showed that serum MDA-LDL levels were an independent predictor of cardiovascular events after PCI in patients with ACS, even after adjustment for age, sex, body mass index, conventional cardiovascular risk factors, other lipid biomarkers, statin use on admission, cardiac biomarkers, and presence or absence of multivessel disease (hazard ratio: 1.80 per 1 standard deviation U/L increase, 95% confidence interval: 1.07–3.16, $p=0.027$). **Conclusion:** Serum MDA-LDL levels on admission are a significant prognostic marker in patients with ACS who undergo successful PCI.