THRESHOLD LEVEL OF LOW-DENSITY LIPOPROTEIN CHOLESTEROL FOR THE EFFECT OF STATIN THERAPY IN THE ACUTE PHASE OF MYOCARDIAL INFARCTION: AN ANALYSIS FROM THE KOREA ACUTE MYOCARDIAL INFARCTION REGISTRY

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Background: It has not been known about the threshold level of low-density lipoprotein cholesterol (LDL-C) in which statin therapy is no longer effective for reducing major adverse cardiac events (MACE) in patients with acute myocardial infarction (AMI).

Methods: Between November 2005 and January 2008, 6866 statin-naive patients in which lipid levels were obtained within the first 24 hours of admission were selected from the Korea AMI registry. The MACE was defined as a composite of death, recurrent myocardial infarction, and revascularizations.

Results: The rate of 6-month MACE and mortality showed “U” shaped curve with higher event rates in very low (<70 mg/dL) and very high LDL-C levels (>166 mg/dL) and lowest rate at LDL-C of 114-122 mg/dL. Propensity scores for statin use were calculated for each of the patients with LDL-C ≤113 mg/dL, and were used to match 1031 patients not receiving statin with 1031 patients receiving statin. During the follow-up, 210 (10.2%) MACEs including death, recurrent MI, and revascularization and 174 (8.4%) deaths from any cause occurred in the matched cohort with a LDL-C level ≤113 mg/dL. In Cox proportional-hazards model, there was no significant difference in the rate of 6-month MACE between statin (9.4%) and no-statin (11.0%) patients (hazard ratio [HR] 0.847, 95% confidence interval [CI] 0.646-1.111; p=0.230). The 6-month mortality was significantly lower in statin patients compared with no-statin patients (7.2% versus 9.7%; HR 0.728, 95%CI 0.539-0.984; p=0.039). However, this reduction of 6-month mortality was no more significant in patients with LDL-C levels of ≤105 mg/dL between statin (7.0%) and no-statin (8.7%) group (HR 0.793, 95%CI 0.566-1.111; p=0.177). The difference of the rate of 6-month MACE and mortality between stain and no-statin patients decreased as baseline LDL-C levels decreased.

Conclusions: The rate of 6-month MACE was the highest in AMI patients with lower baseline LDL-C levels. There was no significant benefit of statin therapy for 6-month MACE and mortality in these Asian patients. Clinicians should have caution in continuing statin therapy during the early phase of AMI in patients with lower LDL-C levels.